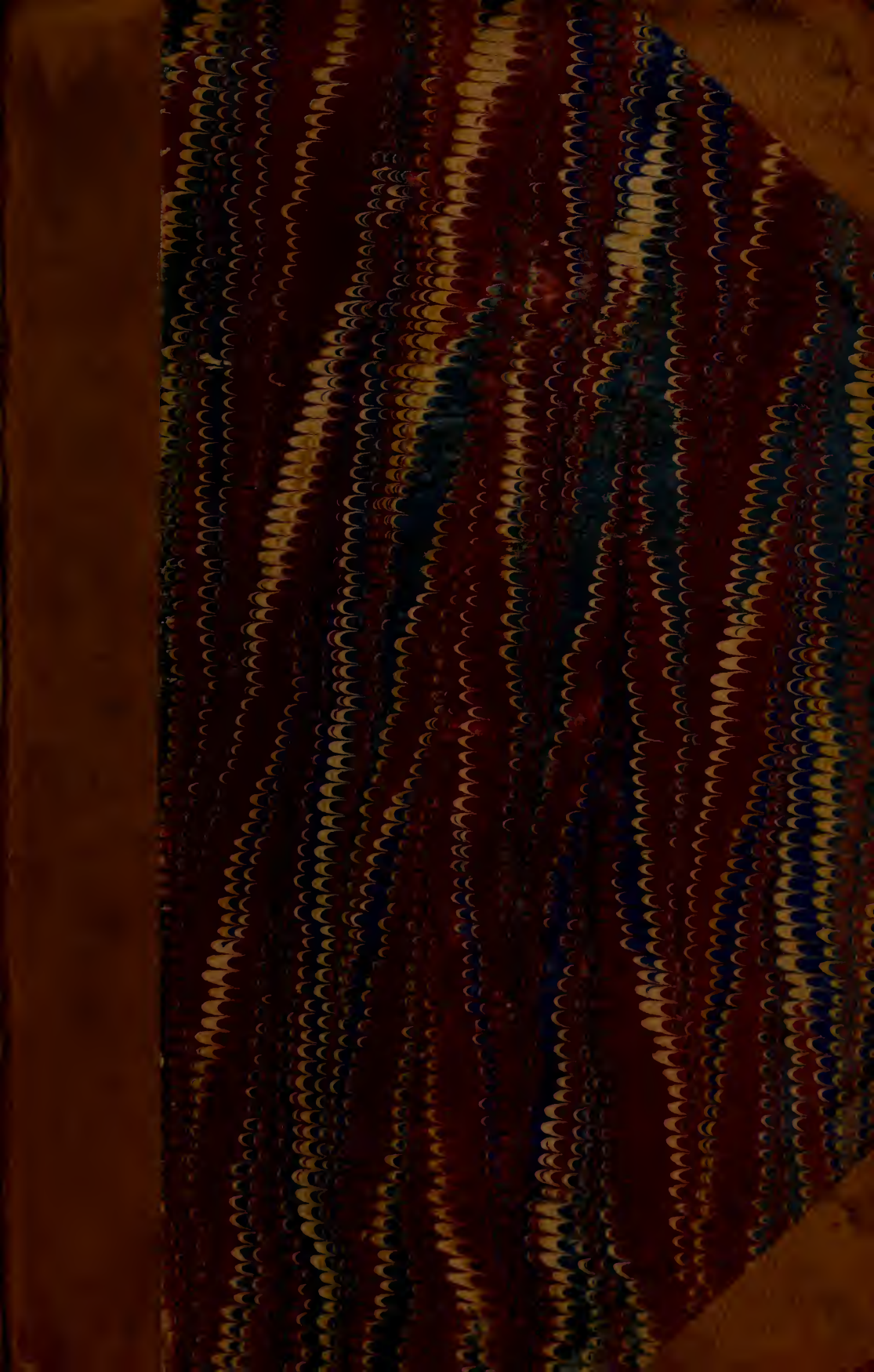














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NOTES

ON

NAVAL PROGRESS.

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JULY, 1897.

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NAVY DEPARTMENT,  
OFFICE OF NAVAL INTELLIGENCE.

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# VI.

## NAVAL MANŒUVRES OF 1896.

By Lieut. Commander E. B. BARRY, United States Navy,  
Staff Intelligence Officer.

### THE BRITISH MANŒUVRES.

According to the newspapers, the information "leaked out" that the date fixed for the mobilization was July 15. Early in June orders were given to get ready at Devonport by the end of the month, for *Tactical Exercises*, 16 vessels, comprising 2 battleships, 4 cruisers, 2 special-service vessels, and 8 torpedo vessels. Of these, 8 did not take part in the manœuvres. June 20, however, an official announcement was made fixing July 8 as the day on which the ships selected by the Admiralty would be commissioned for tactical exercises. Later, by order, the word *Manœuvres* was substituted for *Tactical Exercises* in the Admiralty order of June 20. June 24 the Channel Squadron was due to arrive at Portland, where the vessels were to fill up with coal and with sufficient stores to last until the end of July. June 25 official instructions were issued designating the vessels to be specially commissioned; also the guard ships and other vessels to have their complements filled to seagoing strength.

*Number and class of vessels taking part in the manœuvres.*

| Station.                                                     | Battle-ships. | Cruisers. | Gun and torpedo vessels. | Torpedo boats. | Total. |
|--------------------------------------------------------------|---------------|-----------|--------------------------|----------------|--------|
| <i>I.—Vessels commissioned for the manœuvres.</i>            |               |           |                          |                |        |
| 1. Chatham .....                                             |               | 7         | 3                        | 6              | 16     |
| 2. Devonport .....                                           |               | 4         | 4                        | 6              | 13     |
| 3. Portsmouth .....                                          | 1             | 6         | 2                        | 12             | 21     |
| Total .....                                                  | 1             | 17        | 9                        | 24             | 51     |
| <i>II.—Coast and port-guard vessels, complements filled.</i> |               |           |                          |                |        |
| 1. Chatham .....                                             | 1             | 2         | 8                        |                | 11     |
| 2. Devonport .....                                           | 5             | 1         | 9                        |                | 15     |
| 3. Portsmouth .....                                          | 2             | 1         | 8                        |                | 11     |
| Total .....                                                  | 8             | 4         | 25                       |                | 37     |
| <i>III.—Channel Squadron.</i>                                |               |           |                          |                |        |
| English Channel, etc. ....                                   | 6             | 4         | 7                        |                | 17     |
| Grand total .....                                            | 15            | 25        | 41                       | 24             | 105    |

Table showing strength of manœuvre fleets for years 1894, 1895, 1896.

|                                           | Battle-ships. | Cruisers. | Gun and torpedo vessels. | Torpedo boats. | Total. |
|-------------------------------------------|---------------|-----------|--------------------------|----------------|--------|
| <i>I.—Vessels specially commissioned.</i> |               |           |                          |                |        |
| 1894 .....                                | 1             | 23        | 11                       | 23             | 58     |
| 1895 .....                                |               | 19        | 9                        | 12             | 40     |
| 1896 .....                                | 1             | 17        | 9                        | 24             | 51     |
| <i>II.—Vessels already in commission.</i> |               |           |                          |                |        |
| 1894 .....                                | 8             | 7         | 12                       | 1              | 28     |
| 1895 .....                                | 5             | 4         | 13                       |                | 22     |
| 1896 .....                                | 8             | 4         | 25                       |                | 37     |
| <i>III.—Channel Squadron.</i>             |               |           |                          |                |        |
| 1894 .....                                | 4             | 2         | 3                        |                | 9      |
| 1895 .....                                | 4             | 2         | 3                        |                | 9      |
| 1896 .....                                | 6             | 5         | 8                        |                | a 19   |

a One cruiser and 1 torpedo vessel did not take part in the manœuvres.

Except coal passers, no scarcity of men to fill complements was expected. The men returning from the Australian station had their leave stopped until after the manœuvres. July 2 the following orders and instructions were issued by the Admiralty:

1. The partial mobilization of the fleet this year will take place in July. The ships mobilized will be attached to the Channel and Reserve squadrons for the usual exercises during the preliminary cruise, after which the admirals, acting under the orders received by them, will distribute the ships for the manœuvres which form the second part of the exercises.

2. The ships and vessels assigned to the Channel Squadron for the preliminary exercises will assemble at Portland. Those in a similar way assigned to the Reserve Squadron will assemble at Plymouth.

3. When in all respects ready the Channel and Reserve fleets will proceed to sea for the usual preliminary cruise, during which the fleets may be anchored and exercised at the discretion of the admirals in command.

4. During the absence of the two fleets the torpedo-boat flotilla will be separately exercised from Milford Haven as headquarters.

5. At the expiration of the preliminary cruise the ships and vessels of the fleets will proceed to the ports indicated in the secret orders to coal and prepare for the manœuvres.

6. Instructions for the guidance of the admirals and other officers in command, previous to and during the manœuvres, have been issued, which will come into force at a date to be hereafter specified.

7. The general character of the operations to be carried out in this year's manœuvres is the watching of one fleet in port by the cruisers of another fleet lying in readiness at a chosen anchorage, so that no opportunity may be lost of bringing the first fleet to action or of ultimately defeating the object it has in view before the expiration of the five days allowed for the exercise.

8. The forces placed at the disposal of the admirals in chief command of the opposing fleets will therefore have to be combined and utilized by them in such a manner as to secure the accomplishment of the task allotted to each. No general idea of the manœuvres will be issued beforehand, but the conditions, relative to the fleets,

which exist before the actual commencement of the exercise will be made known to each admiral separately, so that the measures they adopt and the dispositions they make will depend upon this knowledge and the subsequent information they acquire from their own ships and signal stations.

9. The superiority of either of two fleets which meet will, if they are complete and intact in battleships, be decided by the rules to be issued; but if not intact, it will depend on the superior number of battleships present in one fleet. All battleships will count alike for this purpose, and cruisers will not affect the issue.

10. On the conclusion of the manœuvres the ships and vessels will proceed to carry out target practice, separately in the case of all mobilized ships, ample time being allowed for the careful performance of the practice. In the case of other ships, separately or in squadron, at the discretion of the admiral in command.

11. Only one-half of one-quarter's allowance of ammunition is to be expended from the heavy, light, machine, and quick-firing guns of the mobilized ships, and this proportion is to be fired only on the day appointed for target practice, when the guns' crews have become accustomed to their work and can benefit most by the practice.

12. Torpedo-boat destroyers will carry their gun armament, and no alternative armaments will be taken for torpedo boats.

13. As regards depot stores, no ordnance or torpedo stores are required, and only such naval stores as are necessary to keep the destroyers and torpedo boats efficient during the time of the manœuvres. Such naval stores will be embarked in the depot vessels before leaving their ports. The above does not apply to the destroyers already in commission as tenders.

14. A full quarter's ammunition may be fired from destroyers and torpedo boats if considered desirable by the officers commanding fleets. If it is desired to exceed that allowance, Admiralty permission must be obtained at the time.

15. A copy of the ship's log and signal log of every ship taking part in the manœuvres, commencing twelve hours before and ending twelve hours after the active operations, is to be sent to the Admiralty with the reports of the admirals in chief command.

The fleets which will assemble at Portland and Plymouth, respectively, are:

*Channel fleet.*

|                            |                    |                   |
|----------------------------|--------------------|-------------------|
| <i>Majestic</i> (flag).    | <i>Latona.</i>     | <i>Sunfish.</i>   |
| <i>Magnificent</i> (flag). | <i>Andromache.</i> | <i>Dragon.</i>    |
| <i>Royal Sovereign.</i>    | <i>Melpomene.</i>  | <i>Janus.</i>     |
| <i>Empress of India.</i>   | <i>Bellona.</i>    | <i>Boxer.</i>     |
| <i>Repulse.</i>            | <i>Speedy.</i>     | <i>Bruiser.</i>   |
| <i>Resolution.</i>         | <i>Harrier.</i>    | <i>Daring.</i>    |
| <i>Blenheim.</i>           | <i>Hussar.</i>     | <i>Hart.</i>      |
| <i>Hermione.</i>           | <i>Spanker.</i>    | <i>Opossum.</i>   |
| <i>Charybdis.</i>          | <i>Halegon.</i>    | <i>Snapper.</i>   |
| <i>Naiad.</i>              | <i>Alarm.</i>      | <i>Ferret.</i>    |
| <i>Sirius.</i>             | <i>Antelope.</i>   | <i>Contest.</i>   |
| <i>Apollo.</i>             | <i>Hazard.</i>     | <i>Lynx.</i>      |
| <i>Thetis.</i>             | <i>Decoy.</i>      | <i>Banshee.</i>   |
| <i>Tribune.</i>            | <i>Handy.</i>      | <i>Harock.</i>    |
| <i>Forth.</i>              | <i>Lightning.</i>  | <i>Hasty.</i>     |
| <i>Severn.</i>             | <i>Salmon.</i>     | <i>Porcupine.</i> |

## RESERVE FLEET.

|                    |                |               |
|--------------------|----------------|---------------|
| ALEXANDRA (flag).  | IRIS.          | ONYX.         |
| SANSPAREIL (flag). | MERSEY.        | RENARD.       |
| BENBOW.            | PHAETON.       | CIRCE.        |
| EDINBURGH.         | MELAMPUS.      | JASON.        |
| COLOSSUS.          | IPHIGENIA.     | SHARPSHOOTER. |
| SULTAN.            | TERPSICHORE.   | SHELDRAKE.    |
| DREADNOUGHT.       | INDEFATIGABLE. | JASEUR.       |
| THUNDERER.         | BRILLIANT.     | LANDRAIL.     |
| DEVASTATION.       | PEARL.         | SPIDER.       |
| AUSTRALIA.         | LEDA.          | CURLEW.       |
| GALATEA.           | NIGER.         | SEAGULL.      |

## Torpedo Boats.

| No. 95 | No. 87 | No. 84 | No. 79 | No. 76 | No. 74 |
|--------|--------|--------|--------|--------|--------|
| 68     | 66     | 65     | 58     | 52     | 50     |
| 94     | 85     | 81     | 77     | 73     | 71     |
| 67     | 64     | 60     | 59     | 57     | 55     |

Complete preparations were made for the mobilization at the three ports. July 8 the partial mobilization took place. At Devonport, although the hour set was 9 a. m., the crews were sent aboard at 6.30 a. m. and the officers at 7.30 a. m.

The total number of men engaged in the manœuvres was 20,078: Officers, 841; petty officers and seamen, 7,812; boys, 1,028; marines, 2,210; engine room force, 785; firemen and coal passers, 4,914; miscellaneous ratings, 2,488.

After the complements had been supplied there were 2,620 men left at the Portsmouth depot. At Chatham there were 658 men still in the training classes at the gunnery school. July 11 the weekly victualing return at Portsmouth showed 5,600 officers and men still in the fleet. There were 28 officers and about 500 men of the Royal Naval Reserve employed.

The conditions of service for Royal Naval Reserve men during the manœuvres, issued by the Admiralty, were as follows:

The pay as noncontinuous first-class able seamen will be 1s. 4d. (\$.32) per day; as noncontinuous service second-class ordinary seamen, 1s. 1d. (\$.26) per day; for firemen, as noncontinuous service stokers, 1s. 9d. (\$.42) per day. Trained men to receive 1d. (\$.02) a day extra, and men employed coaling the ships to receive extra pay. If sent to hospital or sick quarters, pay is to be allowed under the same conditions as to noncontinuous service seamen of the fleet. Pay will commence from the date of embarkation, and free rations will be granted. Every man will be credited with £1 10s. (\$7.30) in lieu of clothing, which is sufficient to replace articles damaged or lost after paying for articles purchased or taken up aboard to complete the necessary kit. A gratuity of £1 (\$4.86) is to be paid on discharge after twenty-eight days' service. Traveling expenses will be paid to the men or passes issued to the ships and back to their homes, also allowances to cover subsistence and lodging under article 1522 of the Queen's Regulations when meals are not provided at the public expense in traveling by land and water at the following rates: Whenever absent a night, or for every twenty-four hours' absence, 5s. (\$.121);

above nine hours, and not absent a night, 2s. 6d. (£0.61). Marked bedding will be lent the men gratuitously. Men will be discharged to their homes after being twenty-eight days aboard. Time serve aboard during the naval manœuvres is to in addition to the year's drill, or, at the option of the men, to count as the year's drill, or as drill in arrear or advance. Men embarked for the naval manœuvres will be allowed to volunteer at the expiration of the twenty-eight days for six months' further service in the fleet.

Two hundred officers and men of the Irish Coast Guard from Dublin joined the fleet.

Arrangements at Devonport were so complete that the times of departure for the different vessels were set. Most of the preparations were made before the time set for the mobilization.

After adjusting compasses and undergoing one hour's full power natural draught trial the vessels left for their first places of assembly.

There were no depot ships for the torpedo vessels; they were to draw whatever stores required from the ships they accompanied.

The SEAGULL, SPIDER, LANDRAIL, and CURLEW were detailed as depot ships for the torpedo boat flotilla.

At Chatham the following-named vessels were placed in commission: Cruisers: TERPSICHORE, *Tribune*, *Apollo*, *Andromache*, *Thetis*, *Serern*, BRILLIANT. Torpedo vessels: *Porcupine*, *Alarm*, JASEUR. Torpedo boats: Nos. 64, 65, 66, 67, 68, 73, 74.

At Devonport: Cruisers: *Forth*, *Sirius*, PEARL, PHÆTON. Torpedo vessels: *Antelope*, *Hazard*, *Harrier*, *Hussar*. Torpedo boats: Nos. 52, 53, 57, 58, 85, 87.

At Portsmouth: Battleship, SULTAN. Cruisers: IPHIGENIA, INDEFATIGABLE, *Melpomene*, *Latona*, IRIS, *Naiad*. Torpedo boats: *Harock*, *Hasty*, and torpedo boats Nos. 50, 59, 60, 71, 76, 77, 79, 83, 84, 94, 95.

The following named vessels already in commission had their complements filled:

At Chatham: Battleship: SANS PAREIL. Cruisers: GALATEA, MERSEY. Gun vessel: LANDRAIL. Torpedo vessels: ONYX, CIRCLE, SHELDRAKE, and torpedo boats *Janus*, *Contest*, *Dragon*, *Snapper*.

At Devonport: Battleships: BENBOW, COLOSSUS, DEVASTATION, DREADNOUGHT, THUNDERER. Cruiser: MELAMPUS. Gun vessel: CURLEW. Torpedo vessels: *Banshee*, JASON, RENARD, SHARPSHOOTER, SPIDER. Torpedo boats: *Lynx*, *Ferret*, *Opossum*.

At Portsmouth: Battleships: ALEXANDRA, EDINBURGH. Cruiser: AUSTRALIA. Torpedo vessels: *Niger*, LEDA, *Spanker*, SEAGULL. Torpedo boats: *Borer*, *Bruiser*, *Daring*, *Hart*.

The following-named vessels of the channel squadron took part in the manœuvres:

Battleships: *Magnificent*, *Majestic*, *Royal Sovereign*, *Resolution*, *Repulse*, *Empress of India*. Cruisers: *Bleuheim*, *Hermione*, *Charybdis*, *Bellona*. Torpedo vessels: *Halcyon*, *Speedy*. Torpedo boats: *Decoy*, *Handy*, *Lightning*, *Salmon*, *Sunfish*.

The mobilization was carried out within forty-eight hours from the time of hoisting the pennants.

The following is the composition of the fleets:

### COMPOSITION OF THE FLEETS.

#### *Channel Fleet.*

Vice-Admiral Lord Walter T. Kerr, K. C. B., commanding *Channel Fleet*, and later in immediate command of *A Squadron*; Rear-Admiral Armand T. Powlett, second in command, and later in immediate command of *B Squadron*.

#### *A Squadron.*

First place of assembly, Portland; second place of assembly, Bantry Bay.

| Ship.                        | Class.                              | Former station.                        | Date of completion. | Displacement. | Guns, main battery. | Maximum speed. | Complement. |
|------------------------------|-------------------------------------|----------------------------------------|---------------------|---------------|---------------------|----------------|-------------|
|                              |                                     |                                        |                     | <i>Tons.</i>  |                     | <i>Knots.</i>  |             |
| <i>Majestic</i> (flag).....  | Battleship.....                     | Channel.....                           | 1895                | 14,900        | 16                  | 17.5           | 757         |
| <i>Empress of India</i> .... | ...do.....                          | ...do.....                             | 1893                | 14,150        | 14                  | 18             | 725         |
| <i>Royal Sovereign</i> ..... | ...do.....                          | ...do.....                             | 1892                | 14,150        | 14                  | 18             | 730         |
| <i>Repulse</i> .....         | ...do.....                          | ...do.....                             | 1894                | 14,150        | 14                  | 17.5           | 730         |
| <i>Resolution</i> .....      | ...do.....                          | ...do.....                             | 1893                | 14,150        | 14                  | 17.9           | 725         |
| <i>Apollo</i> .....          | Protected cruiser,<br>second class. | Chatham.....                           | 1892                | 3,400         | 8                   | 20             | 273         |
| <i>Naiad</i> .....           | ...do.....                          | Portsmouth.....                        | 1891                | 3,400         | 8                   | 20             | 273         |
| <i>Forth</i> .....           | ...do.....                          | Devonport.....                         | 1888                | 4,050         | 8                   | 17.2           | 325         |
| <i>Severn</i> .....          | ...do.....                          | Chatham.....                           | 1887                | 4,050         | 8                   | 17.3           | 325         |
| <i>Sirius</i> .....          | ...do.....                          | Devonport.....                         | 1892                | 3,600         | 8                   | 20             | 273         |
| <i>Thetis</i> .....          | ...do.....                          | Chatham.....                           | 1892                | 3,400         | 8                   | 20             | 273         |
| <i>Tribune</i> .....         | ...do.....                          | ...do.....                             | 1892                | 3,400         | 8                   | 20             | 273         |
| <i>Harrier</i> .....         | Torpedo vessel...                   | Devonport.....                         | 1895                | 1,070         | 2                   | 18.5           | 115         |
| <i>Hussar</i> .....          | ...do.....                          | ...do.....                             | 1895                | 1,070         | 2                   | 18.5           | 115         |
| <i>Spanker</i> .....         | ...do.....                          | ...do.....                             | 1891                | 735           | 2                   | 19             | 91          |
| <i>Speedy</i> .....          | ...do.....                          | Channel.....                           | 1894                | 810           | 2                   | 20.2           | 91          |
| <i>Decoy</i> .....           | Torpedo boat, first<br>class.       | ...do.....                             | 1894                | 220           | 4                   | 27.6           | 45          |
| <i>Dragon</i> .....          | ...do.....                          | Instructional flotilla,<br>Chatham.    | 1895                | 265           | 4                   | 27.1           | 50          |
| <i>Boxer</i> .....           | ...do.....                          | Instructional flotilla,<br>Portsmouth. | 1894                | 250           | 4                   | 29.1           | 45          |
| <i>Bruiser</i> .....         | ...do.....                          | ...do.....                             | 1895                | 250           | 4                   | 27.9           | 45          |
| <i>Daring</i> .....          | ...do.....                          | ...do.....                             | 1893                | 220           | 4                   | 28.6           | 50          |
| <i>Handy</i> .....           | ...do.....                          | Channel.....                           | 1895                | 260           | 6                   | 27.8           | 50          |
| <i>Lightning</i> .....       | ...do.....                          | ...do.....                             | 1895                | 277           | 6                   | 27.9           | 50          |
| <i>Janus</i> .....           | ...do.....                          | Chatham.....                           | 1895                | 277           | 6                   | 27.8           | 50          |
| <i>Salmon</i> .....          | ...do.....                          | Channel.....                           | 1895                | 264           | 6                   | 27.7           | 50          |
| <i>Sunfish</i> .....         | ...do.....                          | ...do.....                             | 1895                | 264           | 6                   | 27.2           | 50          |

*B Squadron.*

Second place of assembly, Kingstown.

| Ship.                      | Class.                           | Former station.                     | Date of completion. | Displacement. | Guns, main battery. | Maximum speed. | Completion. |
|----------------------------|----------------------------------|-------------------------------------|---------------------|---------------|---------------------|----------------|-------------|
|                            |                                  |                                     |                     | <i>Tons.</i>  |                     | <i>Knots.</i>  |             |
| <i>Magnificent</i> .....   | Battleship .....                 | Channel .....                       | 1895                | 14,900        | 16                  | 17.5           | 757         |
| <i>Blenheim (a)</i> .....  | Armored cruiser .....            | do .....                            | 1893                | 9,000         | 12                  | 21.6           | 563         |
| <i>Charybdis (a)</i> ..... | Protected cruiser, first class.  | do .....                            | 1894                | 4,360         | 10                  | 20             | 318         |
| <i>Hermione (a)</i> .....  | do .....                         | do .....                            | 1894                | 4,360         | 10                  | 20             | 318         |
| <i>Andromache</i> .....    | Protected cruiser, second class. | Chatham .....                       | 1891                | 3,400         | 8                   | 20             | 273         |
| <i>Bellona</i> .....       | do .....                         | Channel .....                       | 1894                | 1,830         | 6                   | 17             | 160         |
| <i>Latona</i> .....        | do .....                         | Portsmouth .....                    | 1891                | 3,400         | 8                   | 20             | 273         |
| <i>Melpomene (b)</i> ..... | do .....                         | do .....                            | 1889                | 2,950         | 6                   | 19             | 216         |
| <i>Alarm</i> .....         | Torpedo vessel .....             | Chatham .....                       | 1894                | 810           | 2                   | 19.6           | 93          |
| <i>Antelope</i> .....      | do .....                         | Devonport .....                     | 1894                | 810           | 2                   | 19.2           | 91          |
| <i>Halcyon</i> .....       | do .....                         | Channel .....                       | 1894                | 1,070         | 2                   | 18.5           | 115         |
| <i>Hazard</i> .....        | do .....                         | Devonport .....                     | 1894                | 1,070         | 2                   | 19             | 115         |
| <i>Contest</i> .....       | Torpedo boat, first class.       | Instructional flotilla, Chatham.    | 1894                | 265           | 1                   | 27.4           | 50          |
| <i>Hart</i> .....          | do .....                         | Instructional flotilla, Portsmouth. | 1894                | 300           | 6                   | 27.1           | 50          |
| <i>Hasty</i> .....         | do .....                         | Portsmouth .....                    | 1894                | 220           | 6                   | 27             | 50          |
| <i>Opussum</i> .....       | do .....                         | Devonport .....                     | 1896                | 264           | 6                   | 28.2           | 50          |
| <i>Havock</i> .....        | do .....                         | Portsmouth .....                    | 1893                | 215           | 4                   | 26.7           | 43          |
| <i>Banshee</i> .....       | do .....                         | Instructional flotilla, Devonport.  | 1895                | 265           | 6                   | 27.9           | 50          |
| <i>Ferret</i> .....        | do .....                         | do .....                            | 1893                | 220           | 4                   | 27.6           | 50          |
| <i>Lynx</i> .....          | do .....                         | do .....                            | 1894                | 220           | 4                   | 27.3           | 50          |
| <i>Porcupine</i> .....     | do .....                         | Chatham .....                       | 1895                | 277           | 6                   | 27             | 50          |
| <i>Snapper</i> .....       | do .....                         | Instructional flotilla, Chatham.    | 1895                | 264           | 6                   | 27             | 50          |
| <i>Hunter (c)</i> .....    | do .....                         | Portsmouth .....                    | 1896                | 265           | 6                   | 27             | 50          |

*a* Rated as battleships for manœuvre purposes.*b* Took the place of *Blake*, repairing.*c* Replaced *Opussum*.

## RESERVE FLEET.

Vice-Admiral Edward H. Seymour, C. B., commanding RESERVE FLEET, and later in immediate command of C SQUADRON; Rear-Admiral Arthur K. Wilson, C. B., V. C., second in command and later in immediate command of D SQUADRON.

## C SQUADRON.

First place of assembly, Plymouth; second place of assembly, Milford Haven.

| Ship.                | Class.                           | Former station.                        | Date of completion. | Displacement. | Guns main battery. | Maximum speed. | Complement. |
|----------------------|----------------------------------|----------------------------------------|---------------------|---------------|--------------------|----------------|-------------|
|                      |                                  |                                        |                     | <i>Tons.</i>  |                    | <i>Knots.</i>  |             |
| ALEXANDRA (flag).... | Battleship.....                  | Coast guard, Portland.                 | 1877                | 9,490         | 18                 | 14.3           | 674         |
| EDINBURGH .....      | .....do .....                    | Coast guard, Queensferry.              | 1886                | 9,420         | 9                  | 14.2           | 396         |
| COLOSSUS .....       | .....do .....                    | Coast guard, Holyhead.                 | 1886                | 9,420         | 9                  | 14.2           | 396         |
| SULTAN.....          | .....do .....                    | Portsmouth .....                       | 1895                | 9,200         | 12                 | 15             | 396         |
| BENBOW.....          | .....do .....                    | Coast guard, Greenwich.                | 1888                | 10,630        | 12                 | 16.7           | 503         |
| AUSTRALIA.....       | Armored cruiser..                | Coast guard, Southampton.              | 1888                | 5,600         | 12                 | 18.1           | 497         |
| TERPSICHORE.....     | Protected cruiser, second class. | Chatham .....                          | 1892                | 3,400         | 8                  | 20             | 273         |
| GALATEA.....         | Armored cruiser..                | Coast guard, Hull.....                 | 1888                | 5,600         | 12                 | 18.1           | 497         |
| IRIS .....           | Cruiser, second class.           | Portsmouth.....                        | 1879                | 3,730         | 13                 | 17             | 257         |
| MERSEY.....          | Protected cruiser, first class.  | Coast guard, Harwich.                  | 1887                | 4,050         | 12                 | 17.3           | 327         |
| IPHIGENIA.....       | Protected cruiser, second class. | Portsmouth.....                        | 1892                | 3,600         | 8                  | 19.7           | 273         |
| PHÆTON.....          | .....do .....                    | Devonport .....                        | 1883                | 4,300         | 10                 | 17             | 297         |
| LEDA.....            | Torpedo vessel ...               | Southampton, tender.                   | 1894                | 810           | 2                  | 19.2           | 91          |
| ONYX.....            | .....do .....                    | Tender, Harwich.....                   | 1894                | 810           | 2                  | 19.2           | 91          |
| RENAED.....          | .....do .....                    | .....                                  | 1894                | 810           | 2                  | 19.2           | 91          |
| NIGER.....           | .....do .....                    | Queensferry, tender..                  | 1894                | 810           | 2                  | 19.3           | 91          |
| CHLCE .....          | .....do .....                    | Tender, Harwich.....                   | 1894                | 810           | 2                  | 19.2           | 91          |
| SPIDER.....          | .....do .....                    | Devonport .....                        | 1891                | 525           | 1                  | 19             | 61          |
| LANDRAIL.....        | Partly protected gun vessel.     | Tender to Wildfire, refitting Chatham. | 1886                | 950           | 4                  | 14.5           | 103         |
| SKATE.....           | Torpedo boat, first class.       | Heid in reserve.....                   | 1895                | 240           | 6                  | 27             | 56          |

*a* Rebuilt.

## D SQUADRON.

Second place of assembly, Torbay.

| Ship.                 | Class.                              | Former station.              | Date of completion. | Displacement. | Guns main battery. | Maximum speed. | Complement. |
|-----------------------|-------------------------------------|------------------------------|---------------------|---------------|--------------------|----------------|-------------|
|                       |                                     |                              |                     | <i>Tons.</i>  |                    | <i>Knots.</i>  |             |
| SANSPAREIL (flag).... | Battleship .....                    | Port guard, Sheerness.       | 1887                | 10,740        | 15                 | 17.5           | 630         |
| DEVASTATION .....     | .....do .....                       | Port guard, Devonport.       | 1892                | 9,330         | 4                  | 14             | 420         |
| THUNDERER .....       | .....do .....                       | Port guard, Pembroke.        | 1890                | 9,330         | 4                  | 14.2           | 420         |
| DREADNOUGHT .....     | .....do .....                       | Coast guard, Bantry..        | 1875                | 10,320        | 10                 | 13.6           | 440         |
| MELAMPUS ... ..       | Protected cruiser,<br>second class. | Coast guard, Kings-<br>town. | 1892                | 3,400         | 8                  | 20             | 273         |
| INDEFATIGABLE .....   | .....do .....                       | Portsmouth .....             | 1892                | 3,600         | 8                  | 19.7           | 273         |
| BRILLIANT .....       | .....do .....                       | Chatham .....                | 1893                | 3,600         | 8                  | 19.7           | 325         |
| PEARL .....           | .....do .....                       | Devonport .....              | 1892                | 2,575         | 8                  | 19             | 227         |
| SHARPSHOOTER .....    | Torpedo vessel ...                  | Particular service ...       | 1890                | 735           | 2                  | 19             | 91          |
| SHELDRAKE .....       | .....do .....                       | Chatham .....                | 1890                | 735           | 2                  | 20             | 91          |
| JASEUR .....          | .....do .....                       | .....do .....                | 1894                | 810           | 2                  | 19.2           | 91          |
| JASON .....           | .....do .....                       | Particular service ...       | 1894                | 810           | 2                  | 19.2           | 91          |
| CURLEW .....          | Partly protected<br>gun vessel.     | .....do .....                | 1885                | 950           | 4                  | 14.5           | 103         |
| SEAGULL .....         | Torpedo vessel ...                  | Tender .....                 | 1891                | 735           | 2                  | 19             | 91          |

*a* Rebuilt.

## Torpedo Boat Flotilla.

First place of assembly, Plymouth.

With C SQUADRON.

Second place of assembly, Milford Haven.

| Boat.                  | Class.             | Former station.  | Date of completion. | Displacement. | Tubes | Maximum speed. | Complement. |
|------------------------|--------------------|------------------|---------------------|---------------|-------|----------------|-------------|
|                        |                    |                  |                     | <i>Tons.</i>  |       | <i>Knots.</i>  |             |
| No. 95, divisional.... | Torpedo boat ..... | Portsmouth ..... | 1894                | 130           | 3     | 23.5           | 18          |
| No. 58 .....           | .....do .....      | Devonport .....  | 1886                | 60            | 4     | 21             | 15          |
| No. 65 .....           | .....do .....      | Chatham .....    | 1886                | 75            | 5     | 19.20          | 15          |
| No. 74 .....           | .....do .....      | .....do .....    | 1886                | 75            | 5     | 19.20          | 15          |
| No. 76 .....           | .....do .....      | Portsmouth ..... | 1886                | 75            | 5     | 19.20          | 15          |
| No. 87, divisional.... | .....do .....      | Devonport .....  | 1889                | 85            | 3     | 23             | 19          |
| No. 84, divisional.... | .....do .....      | Portsmouth ..... | 1889                | 85            | 3     | 23             | 19          |
| No. 50 .....           | .....do .....      | .....do .....    | 1886                | 60            | 1     | 21             | 15          |
| No. 52 .....           | .....do .....      | Devonport .....  | 1886                | 60            | 5     | 19.20          | 15          |
| No. 66 .....           | .....do .....      | Portsmouth ..... | 1886                | 75            | 5     | 19.20          | 15          |
| No. 68 .....           | .....do .....      | Chatham .....    | 1886                | 75            | 5     | 19.20          | 15          |
| No. 79 .....           | .....do .....      | Portsmouth ..... | 1886                | 75            | 1     | 22.24          | 15          |

## With D SQUADRON.

Second place of assembly Torbay.

| Boat.                          | Class.               | Former station.      | Date of completion. | Displacement. | Tubes | Maximum speed. | Complement. |
|--------------------------------|----------------------|----------------------|---------------------|---------------|-------|----------------|-------------|
|                                |                      |                      |                     | <i>Tons.</i>  |       | <i>Knots.</i>  |             |
| No. 85, divisional . . . .     | Torpedo boat . . . . | Devonport. . . . .   | 1889                | 85            | 3     | 23             | 19          |
| No. 55 . . . . .               | do . . . . .         | do . . . . .         | 1886                | 60            | 4     | 21             | 15          |
| No. 57 . . . . .               | do . . . . .         | do . . . . .         | 1886                | 60            | 4     | 21             | 15          |
| No. 67 . . . . .               | do . . . . .         | Chatham . . . . .    | 1886                | 75            | 5     | 19.20          | 15          |
| No. 71 . . . . .               | do . . . . .         | Portsmouth . . . . . | 1886                | 75            | 5     | 19.20          | 15          |
| No. 81, (a) divisional. . . .  | do . . . . .         | do . . . . .         | 1885                | 125           | 3     | 20.8           | 23          |
| No. 49, (b) divisional . . . . | do . . . . .         | do . . . . .         | 1886                | 60            | 4     | 21             | 15          |
| No. 60 (c) . . . . .           | do . . . . .         | do . . . . .         | 1886                | 60            | 4     | 21             | 15          |
| No. 59 . . . . .               | do . . . . .         | do . . . . .         | 1886                | 60            | 4     | 21             | 15          |
| No. 64 . . . . .               | do . . . . .         | Chatham . . . . .    | 1886                | 75            | 5     | 19.20          | 16          |
| No. 73 . . . . .               | do . . . . .         | do . . . . .         | 1886                | 75            | 5     | 19.20          | 15          |
| No. 77 . . . . .               | do . . . . .         | Portsmouth . . . . . | 1886                | 75            | 5     | 22.4           | 15          |

*a* Replaced No. 83.*b* Replaced No. 94.*c* Replaced by No. 27.

The SEAGULL and SPIDER were detailed to act as depot vessels for the Portsmouth flotilla, the LANDRAIL for Sheerness, and the CURLEW for Devonport.

The mobilization may be said to have been carried out within forty-eight hours from the time of commissioning.

The SPIDER was the first vessel to leave Devonport, proceeding direct to Portsmouth to take aboard stores. The CURLEW and DEVASTATION followed, taking up their allotted moorings.

The torpedo boats were the first to leave Chatham, followed by the JASON and *Porcupine*. July 9 the TERPSICHORE was the first to leave.

From Portsmouth the *Harock*, *Hasty*, *Sunfish*, and *Handy* left July 8 for their rendezvous. Of the larger vessels the IRIS was the first to leave. All the vessels except the SULTAN and LATONA completed their steam trial July 8.

Torpedo boat No. 77 steamed into harbor at 11 a. m., quickly followed by Nos. 81 and 79. The *Harock* and *Hasty* got away about noon.

## PORTLAND.

July 10, of the *Channel Fleet* proper, all ships designated to take part in the manœuvres, except the *Blenheim*, had reached Portland. Except the *Hunter*, all the Portsmouth detail had arrived, and all the Devonport detail except the *Forth*. From Chatham only the *Tribune*, *Alarm*, *Porcupine*, *Snapper*, and *Contest* had arrived. Late that night the *Apollo*, *Thetis*, *Severn*, *Andromache*, and *Janus* anchored in the harbor. July 12, with the exception of the *Blenheim*, the *Channel Fleet* was complete.

## PLYMOUTH SOUND.

The first vessel of the RESERVE FLEET to arrive was the battleship THUNDERER, July 6, followed July 8 by the DEVASTATION and CURLEW. The flagship ALEXANDRA arrived July 9. July 10 the CURLEW left for Milford Haven, convoying torpedo boats Nos. 52, 55, 57, 58, 85, and 87. July 11 the SEAGULL convoyed torpedo boats Nos. 76, 50, 71, 77, 81, and 95 to Milford Haven, as also the SPIDER Nos. 49, 60, 64, 66, 79, and 84. Off Eddystone Light, however, the SPIDER, owing to a leak in the main steam pipe, put back to Devonport. July 12 the fleet was complete except the LANDRAIL, injured in collision. The PHAETON was ordered to take her place, and left, as depot ship, for Milford Haven July 13, at 1 p. m. Her repairs completed, the SPIDER convoyed to Milford Haven torpedo boats Nos. 59, 65, 67, 68, 73, and 74.

The comparative strength of the two fleets as assembled was as follows:

| Fleet.        | Battle-ships. | Cruisers. | Torpedo vessels. | Torpedo boats. | Total. |
|---------------|---------------|-----------|------------------|----------------|--------|
| Channel.....  | 6             | 14        | 8                | 20             | 48     |
| RESERVE ..... | 9             | 11        | 13               | 24             | 57     |

Total number of men in —

|                     |        |
|---------------------|--------|
| Channel Fleet.....  | 10,247 |
| RESERVE FLEET ..... | 9,831  |

Of the Royal Naval Reserve, 633 men volunteered for service in the manœuvres, 216 first-class and 417 second-class men. Of these 537 took part in addition to 28 officers.

It might be of interest to notice here that the battleship SULTAN was sunk near Malta in the Comino Channel some years ago and afterwards raised. She was virtually rebuilt, given military masts with fighting tops instead of being ship rigged, and her battery improved by the addition of R. F. guns. In spite of the £200,000 (\$973,300) spent on her, opinions differ as to her efficiency. Her main battery still is composed of M. L. R.

*The Channel Fleet.*

Heavy fog detained the fleet from 9.30 a. m., the hour fixed for weighing, until 5.15 p. m., when the weather cleared.

The torpedo vessels and torpedo boats left first, cruisers next, and battleships last.

The fleet was organized into a number of divisions, as follows:

Battleships, first division: *Majestic* (1), *Royal Sovereign* (3), *Repulse* (5).

Second division: *Magnificent* (2), *Empress of India* (4), *Resolution* (6).

The numbers refer to the torpedo-boat division attached to the vessel.

Cruisers and torpedo vessels: First division, *Apollo*, *Tribune*, *Forth*; second division, *Charybdis*, *Naiad*, *Sirius*; third division, *Hermione* (7),

*Latona, Andromache*; fourth division, *Thetis, Serern, Melpomene*; fifth division, *Halcyon, Hussar, Spanker*; sixth division, *Bellona, Harrier, Antelope*; seventh division, *Speedy, Hazard, Alarm*.

Torpedo boats: First division, *Lightning, Sunfish, Hunter*; second division, *Decoy, Salmon, Handy*; third division, *Dragon, Janus, Snapper*; fourth division, *Banshee, Harock, Ferret*; fifth division, *Lynx, Hart, Hasty*; sixth division, *Boxer, Bruiser, Daring*; seventh division, *Con-test, Porcupine*.

July 14, the first, third, and sixth torpedo-boat divisions went to Falmouth to coal, in compliance with an order requiring them to report whenever the full working stowage, 60 tons, is reduced 25 tons. The other torpedo-boat divisions were sent the following morning. Although the speed of the fleet had not exceeded 10 knots, these little vessels needed a further coal supply after twenty-four hours, though three-fourths boiler power had not been exceeded.

July 15, the following times were required by the battleships to clear ship for action: *Repulse*, 7 minutes 58 seconds; *Resolution*, 9 minutes 5 seconds; *Magnificent*, 9 minutes 30 seconds; *Majestic*, 13 minutes 55 seconds; *Royal Sovereign*, 14 minutes 30 seconds; *Empress of India*, 16 minutes 10 seconds.

July 15, during the evening, the *Blenheim* joined the fleet, which had anchored at 3 p. m. in Mounts Bay.

The cruisers of each division were distinguished from one another by an arrangement of balls, rings, or stripes painted on the smoke pipe. One band on the forward smoke pipe designated the first division; two bands, the second division; similarly the after smoke pipe designated the third and fourth divisions. A ball on each side of the forward smoke pipe, the fifth division, etc. The torpedo boats had painted on their bows, in white figures 2 feet long, the number of their division.

July 16, the fleet got under way at 4 p. m. and steamed to the southward. At 7 p. m. course was altered to the westward and the composition of the squadrons *A* and *B* was made known. July 17, at noon, the squadrons parted company.

#### *A Squadron.*

July 18, exercise at general quarters, fire quarters, etc., and at night the squadron steamed with all lights masked. July 19 the squadron anchored in Bantry Bay, Bearhaven, at 11 a. m. While entering the harbor a man fell overboard from the *Resolution*. He was picked up by a boat from the *Boxer* and turned over to the *Resolution's* cutter. In retaking her station in column the *Resolution* scraped along the starboard side of the *Repulse*, her next astern, and her port side was swept clean, including boats and boat davits, which were rigged out. Neither vessel suffered material damage in the hull.

Coaling by the battleships was completed July 21 and by the cruisers July 22.

*B Squadron.*

July 18 was spent in exercises similar to those of the *A Squadron*. In the afternoon the squadron anchored in Falmouth Harbor, where colliers were awaiting the vessels. The smaller vessels coaled at once and finished before night. July 20, the larger vessels filled up with coal. July 23, the squadron got under way at 5.30 p. m. and shaped course for Kingstown. Night quarters and other exercises were held during the passage, and the squadron anchored at Kingstown July 24 at 3.30 p. m. All the smaller vessels filled up with coal.

The twenty torpedo boats were stationed along the southeast coast of Ireland to watch the RESERVE torpedo boats and to protect *A* and *B* while in the Irish Channel. "The efficiency of this service is of great importance to *Squadron B*, which will be the most exposed to this nature of attack."<sup>1</sup>

The *Channel Fleet* was now ready and awaiting the "declaration of war."

## EXTRACTS FROM FIRST INSTRUCTIONS.

To Admiral of *A Squadron*.

The cruisers of your squadron may go out on receipt of a telegram "Prepare for hostilities," but no hostile act is to be permitted until after war has been declared.

The commencement of hostilities, equivalent to a declaration of war, is expected on the 24th of July. On that day C SQUADRON will be at Milford Haven watched by your cruisers.

Your primary object should be to defeat C SQUADRON by "meeting" it at sea before it can be reenforced; failing that, to defeat the reinforcing squadron or prevent its junction, and failing either [both?], to prevent the entry of the hostile fleets into Lough Swilly.

The objects to be attained are given in the order of their importance, and it can be understood that no other success can make up for leaving C SQUADRON intact.

To Admiral of *B Squadron*.

On receipt of the telegram "Prepare for hostilities," which may be expected early on the 24th of July, you are to proceed at once with your squadron to Dublin Bay, and on your arrival place yourself under the command of the vice-admiral of *A Squadron*.

## RESERVE FLEET.

July 10 and 11 the ships filled up with coal. July 13, at 2.35 p. m., the RESERVE FLEET got under way.

As it left the harbor the fleet was formed into two divisions, as follows:

First division: ALEXANDRA, GALATEA, DEVASTATION, EDINBURGH, MELAMPUS, BENBOW. First scouts: MERSEY, IRIS, SHIELDRAKE. First lookout: BRILLIANT. First linking ships: SHARPSHOOTER, RENARD. Third linking ship: NIGER.

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<sup>1</sup> From Admiralty report, 1897.

Second division: SANSPAREIL, AUSTRALIA, DREADNOUGHT, COLOSSUS, SULTAN, THUNDERER. Second scouts: IPHIGENIA, PEARL, ONYX. Second lookouts: TERPSICHORE, JASEUR. Second linking ships: LEDA, CIRCE. Fourth linking ship: JASON.

Distance between vessels, 2 cables. The fleet exercised at squadron evolutions fog drill, towing fog buoys, signaling with guns and whistles, collision, and grounding stations. Every effort was made to get the ships and crews as rapidly as possible into a state of efficiency.

Before going to sea the following order was issued by Vice Admiral Seymour:

Each ship is to fit as fog buoys two 18-gallon casks, painted red, with two broad white stripes and fitted with slings. These are to be used as buoys, to be towed astern in case of fog.

July 14, the INDEFATIGABLE, that had remained at anchor to remedy defects in her machinery, rejoined during the evening. She was detailed as a "First lookout."

The usual scouting exercises were practiced.

July 15, at 3.30 p. m., the fleet anchored in Falmouth Bay.

July 16, got under way at 10.45 a. m. The evolution was smartly performed, and contrasted with the first weighing from Plymouth. The fleet steamed out in reverse order, the vessels nearest inshore taking the heads of the columns.

When clear of the bay the signal was made to take the third organization. This arrangement had not been made public before. The organization of the C and D squadrons shows it. (*See Composition of the Fleets*, pp. 11, 12).

One of Vice-Admiral Seymour's orders directed that "all ships are to leave their final coaling ports cleared for action, and were to remain so until further orders." This was to be done not as an "evolution," but carefully and deliberately. Instructions were given for working without lights at night, and all ships were directed to construct wooden funnels for the stern steering light when in close order.

About one hour later the signal was made for the D SQUADRON to part company.

#### C SQUADRON.

July 17 a full-powered steam trial was held by the battleships. Speed was increased gradually, the trial beginning about 9 a. m. and ending at noon. For a short time every ship kept her station, but the EDINBURGH failed to keep up and signaled she was doing her best when the ALEXANDRA was logging only 10.5 knots. The trial was then abandoned. In reply to the admiral's interrogatories, commanding officers gave the speed they could maintain for two, six, and twelve hours, as follows: ALEXANDRA, 15, 14, 14; BENBOW, 15, 14, 14; SULTAN, 15, 14, 13.5; COLOSSUS, 14, 13.5, 12.5; EDINBURGH, 10.5, 10, 9.2. The record of a four-hour trial in November, 1893, gave, for the EDINBURGH

at 69 revolutions, a speed of 12 knots. During the manœuvres of 1895 she made 11.5 knots for six hours. She was making 69 revolutions when unable to maintain her station.

July 18 the squadron anchored in Milford Haven about 1.30 p. m.

#### D SQUADRON.

July 16, after parting company, the squadron stood up the channel. July 17 was devoted to subcalibre target practice and other exercises. July 18 the squadron was organized into four subdivisions of two ships each, with the smaller vessels as lookouts. The squadron anchored in Portland Harbor at 3.30 p. m. The ships began coaling at once, which continued uninterruptedly, including Sunday, until finished. July 23 at 3.30 p. m. the squadron got under way, accompanied by six torpedo boats, and anchored in Torbay at 9 p. m. During the period of preliminary exercises the torpedo boat flotilla drilled at torpedo exercises, both day and night, practicing night attacks and evolutions in company. Details are wanting. The twenty-four torpedo boats were divided into four groups of six each to act as follows:

First group, **Nos. 50, 27, 71, 77, 81, 95**, with **PHAETON**, anchored inside Bardsey Island, to cruise between Holyhead and the opposite coast.

Second group, **Nos. 49, 64, 66, 76, 79, 84**, with **SEAGULL**, at Falmouth, from Milford Haven to Carnsore Point.

Third group, **Nos. 52, 55, 57, 58, 85, 87**, with **CURLEW**, at Dartmouth, from Lands End to Scillys.

Fourth group, **Nos. 59, 65, 67, 68, 73, 74**, with **SPIDER**, at Milford Haven, from Plymouth to Torbay.

The RESERVE FLEET was now ready and awaiting the outbreak of hostilities.

#### EXTRACTS FROM FIRST INSTRUCTIONS

##### To Admiral of C SQUADRON.

The commencement of hostilities equivalent to a declaration of war is expected on the 24th of July.

On that date the Battle Squadron of *A* will be at Bearhaven, but the cruisers will be out watching you.

The admiral of *Squadron A's* object is to entice you to sea and bring you to action before reinforcements can reach you.

After D SQUADRON has put to sea he will endeavor to prevent a junction of D SQUADRON with you until he can be joined by *B Squadron*.

Lastly, he may attempt, having failed to "meet" you, to prevent your entry into Lough Swilly.

Your primary object will be to effect a junction at a point which can not be reached by *B Squadron* in time, and "meet" *A Squadron*.

Failing that, to endeavor to "meet" *B Squadron* and enter Lough Swilly alone or with D SQUADRON before the sixth day. The objects to be attained are in their order of importance, and every effort should be made to "meet" *A Squadron* with superior numbers.

## To Admiral of D SQUADRON.

In receipt of the telegram "prepare for hostilities," which may be expected early on the 24th of July, you are to proceed at once with your squadron to Torbay, and on your arrival place yourself under the orders of the vice-admiral in command of C SQUADRON.

## MANŒUVRES.

The following is the general idea of the manœuvres:

The operations to take place between latitude 49 degrees north and latitude 56 degrees north, and longitude 2 degrees west and 15 degrees west.

The fleets to be ready for hostilities at noon July 24, war to continue from midnight to 8 a. m. on the sixth consecutive day.

SQUADRON C, at Milford Haven, is watched by the cruisers and small vessels of *Squadron A*, which is lying in readiness at Bearhaven.

*Squadron B* is at Kingstown "being organized" to cooperate with *A*. This is known to *C*, but *B*'s strength, and that it would not put to sea for forty eight hours, is not known to *C* and *D* for twenty-four hours.

*Squadron D* is in Torbay "being organized," but unable to put to sea for forty-eight hours, which, as well as *D*'s strength, is not known to *A* and *B* for twenty-four hours.

Except Lough Swilly, all the coast of Ireland and Portland are friendly to *A* and *B* and hostile to *C* and *D*. Except Portland, all the coast of England within the limits assigned, and Lough Swilly, are friendly to *C* and *D* and hostile to *A* and *B*.

*A*'s objective is to defeat *C* after drawing it out of port; secondly, after learning of the existence of *D*, to prevent *C* and *D* from effecting junction until *A* has been joined by *B*; thirdly, to prevent *C* and *D* from finding safety in Lough Swilly.

*C*'s objective is first to unite with *D* and defeat *A*; secondly, failing in this, to reach Lough Swilly, either singly or united with *D*, before the expiration of the time allowed.

The battleships of each squadron being present—

*A* is superior to *C* and of greater speed.

*C* is superior to *B*, while *B* is equal to *D*, but of greater speed.

If *A* meets *C*, the latter must return to Milford Haven.

If *A* meets *D*, the latter must return to Torbay.

If *A* meets *C* and *D* combined, *A* must return to Bantry Bay.

If *A* meets *C* after having met and defeated *D* in action, *A* must return to Bantry Bay; but if junction with *B* before meeting *C* has been effected, *C* must go back to Milford Haven.

If *B* meets *D*, no decisive result can follow, unless through the absence of battleships, in which case the inferior squadron must return to its base.

"Meeting" means battleship squadrons to be within 3 miles of each other for two hours.

The ports assigned for the assembly of the squadrons being naval bases with coast-defense ships or reserve torpedo boats available, only the combined squadrons *A* and *B* can prevent *C*, should they meet within 20 miles of the entrance, from going into Lough Swilly; but under these conditions *A* can defeat *D*.

All ports used as bases as well as Portland and Lough Swilly are proof against torpedo boats.

In the meantime the cruisers were permitted, if possible, to obtain information of the enemy's whereabouts or movements.

July 24, about noon, hostilities were announced to begin at midnight to *A*, *C*, and *D* squadrons, and to *B* squadron at 7.40 p.m. After anchoring off Kingstown, *B*'s plan of defense is shown in the accompanying sketch. Torpedo boats remained under way and picket boats were stationed.

*Rules for putting ships out of action when "meeting."*

| Ship meeting.                         | Ship met.                          | Time kept.           | At distance  |
|---------------------------------------|------------------------------------|----------------------|--------------|
|                                       |                                    | <i>Minutes.</i>      | <i>Mile.</i> |
| Battleship .....                      | First-class cruiser .....          | 70                   | 1            |
|                                       | Other cruisers .....               | 30                   | 1            |
|                                       | Smaller vessels .....              | 10                   | 1            |
|                                       | First-class torpedo boat .....     | 3½                   | ½            |
|                                       | Second-class torpedo boat .....    | 2                    | ½            |
| First-class cruiser .....             | Cruiser .....                      | 50                   | 1            |
|                                       | Smaller vessel .....               | 30                   | 1            |
|                                       | First-class torpedo boat .....     | 5                    | ½            |
|                                       | Second-class torpedo boat .....    | 2                    | ¼            |
| Second-class cruiser .....            | Smaller vessel .....               | 40                   | 1            |
|                                       | First-class torpedo boat .....     | 7                    | ½            |
|                                       | Second-class torpedo boat .....    | 3½                   | ¼            |
| Smaller vessel .....                  | First-class torpedo boat .....     | 20                   | ½            |
|                                       | Second-class torpedo boat .....    | 4                    | ¼            |
| First-class torpedo boat .....        | Second-class torpedo boat .....    | 5                    | ¼            |
| Two vessels, any class .....          | One vessel, class next above ..... | (a)                  | (b)          |
| Any class .....                       | Same class .....                   | No.                  | No.          |
| One vessel, any class, and 1 smaller. | Same class as larger .....         | (c)                  | (c)          |
| a Time double above.                  |                                    | b Distance as above. |              |
|                                       |                                    | c As above.          |              |

By smaller vessel is meant one not a cruiser that has guns above a 12-pounder and at least two R. F. (6 or 3 pounders). No ship can put two other ships out of action at the same time; each must have its separate time allowance.

No battleship can be put out of action unless met by two or more battleships or struck by a torpedo. Single ships put out of action under these rules can take no further part in the manœuvres, but must return to port of assembly and await orders from the Admiralty. The period of action is to be between the two guns which the larger ship must fire to mark it, the first to be fired when the two ships, in

the judgment of the officer observing from the larger ship, are within the prescribed distance, and the second at the expiration of the time allowed. No other guns than those mentioned above are to be fired in action between single ships, but, though gun fire will have no part in deciding the issue in fleet actions, yet to make the exercise of going to quarters more complete admirals in command of fleets meeting are to use blank ammunition at their discretion. Admirals having torpedo boats under their orders can establish torpedo-boat stations at any ports in their territory, and, similarly, admirals having "destroyers" in their fleets can establish destroyers' stations in their own territory. All islands, except Bear Island, are neutral, and can not be used as bases of operation.

### *Channel Fleet.*

*A Squadron.*—July 24, at 1 p. m., the cruisers were sent out by divisions; the first division, composed of the *Apollo*, *Naiad*, and *Sirius*, was to be off Milford Haven before midnight; the second division, *Thetis* and *Tribune*, and the third division, *Forth* and *Severn*, were to serve as linking ships, and to keep touch between the first division and the signal stations on the Irish Coast until the departure of *A*.

July 25 lay at anchor cleared for action until 4 p. m. Although not attacked during the preceding night, every preparation was made for defense, and picket boats patrolled the harbor entrance. The torpedo boats and cruisers were sent out on scouting duty, particularly to keep touch with *C*.

July 25 the *Boxer* claimed to have torpedoed the *SULTAN* about 1 a. m. while *C* was steering south from Milford Haven. The *COLOSSUS*'s claim that she sank the *Boxer* was allowed. The torpedo boats put in at Kingstown, coaled, and immediately went to sea again.

The *Naiad* sighted the Smalls Light at 1.30 a. m.; she reported sighting two men-of-war at 1.50 a. m., and heard heavy firing at 3.45. At 7.15 a. m. she proceeded to Milford Haven, and at 9.30 a. m. saw there were no men-of-war in Dale Roads. Heading for Carnsore, past the Smalls, she spoke the *Forth* at noon and heard from her the *Apollo* was off Carnsore, with which vessel she communicated at 1.40 p. m. and proceeded to Bearhaven under orders to join the admiral. At 3.20 p. m. the *Apollo* had communicated with Carnsore Signal Station. The *Naiad* reached Bearhaven July 26 at 1 a. m. She rejoined *A* the same day at 9.30 p. m.

The *Sirius* sighted the Smalls at 2.20 a. m. At 5.55 a. m. sighted the *Boxer*, who reported *C* had left Milford at midnight and was steering SW. by S. The *Boxer* was directed to proceed at once to Carnsore Point to telegraph the admiral, "a signal which the *Boxer* does not appear to have understood, for it was not acted upon." The *Sirius* started full speed for Bantry Bay, where she arrived at 5.05 p. m., meeting *A* coming out.

The movements of *C* reached *A* by telegram from *B* about 3 p. m. At 4 p. m. the battle squadron, accompanied by the *Harrier*, *Hussar*, and *Spanker*, was underway. Outside, about 6 p. m., the cruiser *Sirius* signaled that *C* had escaped; that the torpedo boat *Hunter*, from whom the information had been obtained in the morning, had been ordered to the signal station at Carnsore Point to telegraph, while the *Sirius* steamed at full speed for Bearhaven; and that *C* was steering SSE. *A* steered at once for a point 25 miles south of the Scilly Islands, at 11.5 knots, to observe the entrance of the English Channel. The only cruiser with the battle squadron was the *Sirius*, the others being in the neighborhood of Milford Haven; hence the range of observation for Vice-Admiral Kerr was limited to the area covered by the four light vessels still with him. At midnight Vice-Admiral Kerr opened his final instructions, and learned for the first time that *D* was at Torbay, and not permitted to get underway until forty-eight hours after the beginning of hostilities.

July 26, speed was increased to 13 knots to attain the station off Scilly Island. Before 4 a. m. the cruisers *Thetis* and *Tribune* fell in with the *A* battle squadron, increasing the scouting capacity. Nothing was seen of *C*, and course was changed after passing Scilly outside the range of the signal station there. During the forenoon hostile cruisers were sighted to the eastward of Lands End. *Squadron A* was discovered at 11.45 a. m. by the *IRIS*, that steamed at full speed to report off the Lizard to the *GALATEA*. Late in the afternoon four of the enemy's scouts, the cruisers *MERSEY* and *IPHIGENIA*, and torpedo vessels *LEDA* and *RENARD*, were sighted off the Lizard and chased by the *Forth*, *Severn*, and another cruiser, but escaped. About 6 p. m. Lands End was reached, where the battle squadron was joined by the rest of the *A* cruisers. Course was then shaped for Waterford, off which place was the rendezvous with *B*. At this time the possibility was thought to exist of preventing the junction of *C* and *D*. The whereabouts of *C* remained unknown, though *A*'s course showed either that *C* was not to the westward of Lands End or so far to the westward as to be unable to reach that point before *D*. *C* also might be to the eastward of Lands End, but considering that his instructions had made known to him the existence of *D* twenty-four hours after the declaration of hostilities, Vice Admiral Kerr concluded *C* would be equally delayed. About midnight course was changed again for Lands End. At the same time the *Forth* was sent to notify *B* and to inform Rear-Admiral Powlett of a new rendezvous. July 27, a torpedo boat made an attack about 4 a. m., but day was breaking and the boat was put out of action. Reaching Lands End about 6 a. m., the cruisers that had been scouting rejoined the squadron. The *Sirius* reported she had observed *C* and *D* battleships at anchor in Torbay about 5.30 p. m., July 26; she counted nine battleships, two cruisers, and three torpedo vessels. Hence the second objective also had failed. About noon the torpedo boats *Handy*

and *Lightning* rejoined, reporting they had left the *B Squadron* about 25 miles south of Waterford at 9.30 a. m. The *Hussar* broke down and was sent to Queenstown for repairs.

Two courses were open after junction with *B*, either to attempt to intercept the enemy somewhere between Lands End and Lough Swilly or to steer at once for the latter port and prevent ingress. Course was shaped accordingly to meet *B*, and the rendezvous was passed. *A*'s departure from Lands End was noted by the enemy's cruisers, but they were driven off and it was hoped junction with *B* was not observed. Junction in latitude  $50^{\circ} 50'$  north, longitude  $6^{\circ} 15'$  west, was effected about 2 p. m.

*B Squadron*.—July 26, at midnight, the squadron got under way for the rendezvous with *A* off Waterford. The cruisers were sent out in advance. July 27 lights were masked during the night, although the sea was smooth, with bright moonlight. Speed was 14 knots, and the rendezvous was reached about 8 a. m., where the *Forth* signalled orders from Vice-Admiral Kerr to join him as quickly as possible 20 miles north of Longships Light. Course was changed at once to the southward and speed increased to 15 knots. The torpedo vessel *Speedy* was fallen in with soon after. She reported having left the *A Squadron* the afternoon of July 26 to recall the cruisers *Sirius* and *Tribune* and to rejoin the admiral at a rendezvous at 8 a. m., July 28, 5 miles south of Dunmore. Chased by six of the enemy's cruisers, she had been unable to carry out her orders. At 5 p. m. July 26, however, she had captured torpedo boat No. 58 off Eddystone light. About 1.30 p. m., July 27, the main body of *A* was sighted. Junction was effected fully 60 miles north of the Lands End rendezvous. *B*, by signal, took station on the starboard beam of *A*, distance 8 cables. The united fleet shaped course for Cape Clear.

#### UNITED SQUADRONS.

The two courses open to Vice-Admiral Kerr were to reach Lough Swilly by either the eastern or the western coast of Ireland. Presumably when last seen by the hostile scouts the *A Squadron* was standing up the Irish Channel; hence the presumption that Vice-Admiral Seymour would be so informed. Adding to this the fact that the hostile torpedo boats were along the eastern route, Vice-Admiral Kerr determined to choose the western route, and to attempt, first, to intercept the RESERVE FLEET off Cape Clear; secondly, failing in this, to push for Lough Swilly. Accordingly course was shaped for Cape Clear, which was reached about 8 p. m. Scouts were extended about 15 miles to the southward, but no signs of the RESERVE FLEET were seen. The torpedo vessels *Harrier* and *Speedy* and the cruiser *Severn* were sent up the east coast to search for torpedo boats. During the early evening the torpedo boat *Lightning* rejoined.

July 28, during the early morning, the *Severn*, *Harrier*, and *Speedy* rejoined with a report from the injured *Bellona* that she had seen the

RESERVE FLEET steaming up the Irish Channel near the English Coast.

About 9 a. m. Assistant Engineer Good of the cruiser *Hermione* fell overboard while the fleet was steaming 14 knots. The first lieutenant, Mr. A. R. C. Warren, jumped overboard to attempt his rescue. Both officers were drowned. The *Hermione* turned out of line, being at the time the rear ship of the starboard battleship column. Both lifeboats were lowered, but neither officer was reached. The life buoys were picked up and the ship steamed ahead full speed to retake her station. The fleet reached Lough Swilly at midnight.

July 29: The night was dark and squally, and it was impossible to discover whether the RESERVE FLEET had reached the port. Several cruisers were seen, but it was not until 2 a. m. that communication was established with one that proved to be the *Bellona*. She reported the signal station at Malin Head had signaled about 9 p. m. that no enemy had entered Lough Swilly; also that at 2 p. m., July 28, the signal station at Brow Head had seen a fleet passing. The battleships formed column of vessels at 3 cables on the line from Tory Island to Inishtrahull. The cruisers on the arc of a circle distant 10 miles from the battleships, and the smaller vessels still farther off. The day was spent cruising in the neighborhood of the port between Malin Head and Tory Island. The cruisers, except the *Thetis*, that had been sent to Queenstown for repairs, and nearly all the torpedo vessels, rejoined between midnight and 6 o'clock, showing close calculation by the admiral and by the cruisers.

July 30: The night again was thick, but nothing was seen of the enemy, although the lookout was of the best. Just before dawn the cruiser IRIS was made out to the SSE., accompanied by the torpedo vessels CIRCE and RENARD, standing to the northward. The *Channel Fleet* stood west about 4 miles, and then headed back for Lough Swilly. The fog shut in thicker than before, while the fleet stood NE. At 6.10 a. m. the fog lifted and the RESERVE FLEET was made out standing in from the eastward and too near the harbor entrance to be intercepted. At this time the *Channel Fleet* was about 3 miles distant from Fanad Point at the western entrance.

The *Channel Fleet* then steamed at slow speed to Kingstown, where it anchored July 31, at 7 a. m. The cruiser *Bellona* was sent into Moville Lough with a telegram to Vice-Admiral Seymour to join at Kingstown, and the cruiser *Severn* was left off Lough Swilly to send all cruisers and scouts to join the fleet.

#### RESERVE FLEET.

C SQUADRON.—July 23, the squadron unmoored and dropped down from Milford to Dale Roads, where the vessels rode at single anchor. The importance of unmooring was shown by the time taken for the five battleships to complete the evolution. The signal was made to begin

unmooring at 1.30, and 3 p. m. to leave the anchorage. At that time only the ALEXANDRA and COLOSSUS were ready, a variety of accidents delaying the other ships. All the vessels were not at the new anchorage until after 5 p. m.

July 24, preparations for sea were made. At 1 p. m. the first scouts, the GALATEA and IRIS, cruisers, and ONYX, torpedo vessel, were sent out to reconnoiter to the westward, while the second scouts, the cruisers AUSTRALIA and TERPSICHOE, were sent to the NW. All were to return before dark.

The orders to the cruisers were as follows: Form column NW.-SE. 20 miles off St. Anns Head, TERPSICHOE to NW., then AUSTRALIA, LEDA, RENARD, GALATEA, IRIS, ONYX, MERSEY, and IPHIGENIA, in the order named, 5 miles apart. When battle squadron, masked by the cruisers, comes within 5 miles of them the cruisers will steer for the Longship light at 11 knots. TERPSICHOE steers SW. by W. 65 miles, and then steers directly for Longship light. Cruisers to increase distance to 15 miles ahead of battle squadron. Enemy's cruisers, if met, to be driven back. Battle squadron to go up Channel to Torbay. First and second scouts and both divisions of lookouts off Lands End and Lizard to watch for enemy. Second scouts, AUSTRALIA and TERPSICHOE, near Lands End, report from signal station at Sennen Cove, telegraphic information to Lizard, Prawle Point, and Torquay. First scouts GALATEA, IRIS, and ONYX same duties at Lizard. First lookouts cruisers MERSEY and IPHIGENIA, with second lookouts torpedo vessels LEDA and RENARD, keep 20 miles NW. by W. of Lands End. All retreat to Torbay or else southward to sea.

The cruiser PHAETON, convoying six torpedo boats, also went to sea. They were to form a connecting patrol between Bardsey Island and Wicklow Head during the night. Several of the cruisers returned as late as 9.30, reporting they had seen nothing of the enemy. By 10.30 all cruisers and torpedo vessels except two had gone to sea. The squadron weighed at midnight.

July 25, course was shaped to the southward and westward at 10 knots. A moderate gale from the southward was blowing, with rain, and the night was dark. The weather moderated somewhat toward morning, the wind backing to the eastward, but a fog came on, necessitating a reduction of speed. The weather cleared, however, about 9 a. m., with the squadron heading between the Wolf light and the mainland. The cruiser IPHIGENIA was picked up here; also the MERSEY and the torpedo vessels CIRCE and NIGER; the GALATEA was with the battleships. The CIRCE was sent to communicate with a friendly signal station. Lands End was passed at 10 a. m. By noon the weather cleared and speed was increased to 11.5 knots. It is to be noted that the EDINBURGH apparently had no difficulty in keeping station. During the afternoon scouts reported some of the enemy's scouts had been seen from Holyhead and off the coast of Cornwall. Two

cruisers, the *GALATEA* and *IRIS*, were sent to examine the neighborhood of the Scilly Islands. They were especially active; they drove back the *Thetis*, discovered and reported the approach of *A Squadron* and watched its movements. As soon as it passed they chased the *Apollo*, *Forth*, and *Severn* with such energy that the *GALATEA* was on the point of firing the first gun when *A Squadron* was sighted returning. They remained in sight until the squadron turned Lands End. The battle squadron anchored in Torbay at 8 p. m. without having been molested.

The cruiser *AUSTRALIA* left Lands End on the morning of July 25, in company with the *TERPSICHORE*, to reconnoiter to the NW. During the afternoon two of the *A* cruisers were chased, but escaped, owing to superior speed. July 26, at 5.30 a. m., the two cruisers were off St. Anns Head, but obtained no information. Steering up St. Georges Channel a report was made at 7 p. m. to the signal station in St. Brides Bay that nothing had been seen, and the *TERPSICHORE* went to the St. Anns Head for orders. She returned with notice of a rendezvous at daylight 20 miles SSW. of the Lizard. To reach this was an impossibility, as there were only six hours in which to make 130 miles.

July 27, at 6 a. m., the cruisers were off the Longships in an effort to rejoin the *RESERVE FLEET* by intercepting it. At 6.30 a. m. they sighted a fleet rounding the Lizard, about 15 miles from it, which was soon recognized as the *Channel Fleet*, and this information was communicated to the Sennen Cove signal station for telegraphic transmission. Injury to a feed pipe aboard the *TERPSICHORE* had happened the evening before, reducing her speed to 14 knots, but by this time it was repaired, making her again faster than her consort. The cruisers steamed to the NE., well under the land, hoping later to be able to double back and rejoin their own fleet, but at 10 a. m. they were chased by three cruisers, the *Apollo*, *Naiad*, and *Sirius*, all faster than the *AUSTRALIA*. Every effort was made at 11 a. m. to increase speed, hoping to reach Milford Haven, 75 miles distant. The enemy slowly gained, and at noon the engineer's force was formed into two watches, increasing the *AUSTRALIA*'s speed to 16 knots.

Having approached within a mile, the enemy fired a gun to indicate the beginning of the one hundred and forty minutes necessary for a capture. The *TERPSICHORE* a few minutes afterwards changed course to the westward, while the *AUSTRALIA* headed south, but the three cruisers continued to follow the latter, and a mimic battle took place, guns being trained, ships manœuvred, etc., as in real warfare. At 2.40 p. m. the *AUSTRALIA*, under the rules, surrendered and proceeded to Milford Haven to await orders. The *TERPSICHORE* escaped.

**D SQUADRON.**—July 24, the battleships rigged torpedo nets and at midnight took night stations to resist torpedo attack.

July 25, every light was screened, except the stay lights, which, of course, would indicate the ships' positions. The night was favorable

for torpedo attack, being cloudy and with frequent rain squalls, but no attack was made. The torpedo boats were outside during the night to guard against surprise.

It was reported that the torpedo vessel SEAGULL had torpedoed the cruiser *Thetis*, of the *A Squadron*.

News was received during the morning from the signal station that C SQUADRON had put to sea at midnight, and that nine ships steering west had been seen at 9.30 a. m. off Sennen Cove. At noon signal was made to be ready for sea at midnight. At 5 p. m. news was received that five battleships and two cruisers were sighted at noon off the Lizard, steering east, and at 8 p. m. the battleships of C anchored in the harbor, raising the united force to nine battleships and nine smaller vessels.

#### UNITED SQUADRONS.

C SQUADRON began to coal at once and continued doing so until bunkers were full. July 26, coaling was finished during the forenoon; steam was ordered for 11 p. m., full speed; ships to weigh independently and to proceed out of harbor, all lights to be masked. Outside, the third organization again would be taken up. At midnight the vessels left the harbor.

July 27, the night was fine and clear, with bright moonlight. Course was shaped down channel and the fleet formed column of divisions, the ALEXANDRA and SANSPAREIL leading, with the available cruisers and torpedo vessels disposed ahead and to port on the lookout for the enemy. Speed of battleships, 12 knots.

At 5.45 a. m. eight vessels were reported in sight, the fleet being then about 20 miles from Lands End, which proved to be the rest of the RESERVE cruisers, except the AUSTRALIA, TERPSICHORE, MERSEY, and torpedo vessel LEDA. They reported that the MERSEY had been seen and chased away to the northward; also that the *A Squadron* had been seen at 10.50 p. m., July 2; steering NW. from Scilly Islands. The INDEFATIGABLE was sent in there for news, while the fleet stood about SW. to avoid *A*, supposed from the reports to have gone north to effect junction with *B*, and then possibly to return. There were two courses open to the RESERVE FLEET—either to steam north, passing up St. Georges Channel, or to head for Cape Clear and around the west coast of Ireland. The fleet steamed for one hour to the westward and then headed for Lands End, which was passed about 5.30 p. m. At noon the cruiser BRILLIANT was sent to the Scilly Islands for information, and the torpedo vessel SHARPSHOOTER to find the INDEFATIGABLE and to inform her of the movements of the fleet.

Trevose Head signal station reported an engagement between five cruisers about 1 p. m., evidently the capture of the AUSTRALIA, previously related. At 5 p. m. Sennen Cove station reported through the BRILLIANT that at 10.30 a. m. the *Channel Fleet* was standing up the Irish Sea. Course was altered to the southward, and the fleet passed

Scilly again, heading WSW. During the night nothing was seen of the enemy. It was hoped the hostile cruisers had been eluded; the cruiser IRIS reported the fleet had not been followed.

July 28, at 8 a. m., the fleet was about 100 miles south of Cape Clear, and course was changed to skirt the west coast of Ireland, keeping out of the range of the signal stations. The weather was clear and calm, with a smooth sea, and the fleet made good progress, a speed of 12 knots being attained. During the afternoon the sea and wind rose and the weather became thick. An accident to the starboard engine of the BENBOW delayed the fleet about two hours, speed being decreased to 5 knots. Nothing of any importance took place during the night.

July 29, after midnight, the wind and swell went down, but the weather remained thick and rainy. At early daylight the GALATEA, BRILLIANT, INDEFATIGABLE, and IRIS, cruisers, and CIRCE, JASEUR, RENARD, and SHARPSHOOTER, torpedo vessels, were sent ahead to reach the rendezvous from which at a certain time they were to approach Lough Swilly from the east. After passing Achill Head the fleet steered for latitude  $55^{\circ} 50'$  north, longitude  $9^{\circ} 25'$  west. Orders were for the squadrons to separate should A and B together be met, and D was to make for Lough Swilly. It was hoped to reach this rendezvous at 8 p. m., but the time was nearly 10 p. m. when the fleet arrived there.

From the rendezvous, about 70 miles northwest from Lough Swilly, the battleships formed column of vessels, the ALEXANDRA leading and the SANSPAREIL sixth in column. All lights except the taffrail light were masked, and course was shaped direct for Lough Swilly. The cruisers steered a circular course, to approach from the eastward.

July 30, course was held during the night, and at 5 a. m. a hostile torpedo vessel was sighted. At the time the RESERVE cruisers approached the coast the weather was thick, but an hour later, about 6 a. m., the weather cleared sufficiently for the battleships to enter without difficulty. When the mist was thick the CIRCE, IRIS, and RENARD missed the entrance to Lough Swilly and were discovered by the *Channel Fleet* and chased, but, finding the entrance, escaped. It is thought the *Channel Fleet*, upon abandoning the chase of the cruisers, withdrew to the northward, leaving the western line clear. When the RESERVE FLEET was at the harbor mouth steaming, in the *Channel Fleet* was made out to the northward too far distant to prevent entry. Victory rested with the RESERVE FLEET. The anchorage was reached about 6 a. m. After target practice and inspection the vessels returned to their former stations.

#### TORPEDO BOAT FLOTILLA.

July 24, the first group or division weighed at midnight and took station from Bardsey Island to North Arklow light, about 7 miles apart, in the following order: No. 27, at 7 miles from Bardsey Island; No. 50, No. 71, No. 77, No. 81, No. 95, and the PHAETON about 22 miles out.

The fourth division, with the SPIDER, patrolled off the Smalls, and returned to Milford the morning of July 25.

July 25, at 9 p. m., to intercept *B*, if possible, the PHAETON and five boats proceeded on slightly divergent courses toward the Irish coast with orders, after running 52 miles, to alter course to south toward Bishops light, and then to proceed in company to Milford, where they arrived at 6.30 a. m., July 26, without having obtained touch with the enemy.

July 26, at 8 p. m., the PHAETON and SPIDER, with the ten available torpedo boats of the first and fourth divisions, went out and established patrol between Bishops and Tasker lights, No. 81 nearest the Irish coast. All except No. 81 returned to Milford in the morning. No. 81 had met with an accident to her rudder, but reached port during the afternoon. She took no further part in the manœuvres. No. 95 rejoined from Holyhead July 27, having escaped the Kingstown torpedo boats.

July 24, the second division left Falmouth at 9.30 p. m. to scout off the Lizard, but soon returned to harbor, owing to bad weather.

The third division left Dartmouth at 9 p. m., scouting from the Start to Mewstone, and returned to port in the early morning.

July 25, the second division scouted off the Lizard from 9 p. m. to 4 a. m., but saw nothing.

Nos. 85 and 87, of the third division, were outside for about one hour.

July 26, the second division remained at Falmouth awaiting orders.

Of the third division, No. 87 went to Torbay and returned to Dartmouth at 1 p. m.

Under orders to combine with the second division, the third division left Dartmouth at 1.45 p. m. Near the Eddystone light at 5.10 p. m. the *Speedy* and *Spanker* were sighted, coming up channel, and immediately chased. Under signal from No. 87 to disperse, Nos. 85, 52, and 55 made for the land, while Nos. 87, 57, and 58 went to the southward. The *Spanker* captured Nos 87 and 57, while the *Speedy* took No. 58. No. 57 claimed to have torpedoed the *Spanker*.

No. 58 returned to Plymouth and took no further part in the manœuvres.

No. 52, returning to Milford, was captured at 4 a. m., July 27, by the *Repulse*.

July 27, the PHAETON, with eleven boats of the first, third, and fourth divisions, got under way to meet *C*, or else to patrol the channel and intercept enemy's vessels. Before darkness set in four hostile torpedo boats were seen off Grassholm Island. Although signal was made to close on the PHAETON, the boats were unable to do so, and an attempt was made to return to Milford, the enemy following. The PHAETON was unable to effect capture, as six minutes was the longest time she could keep them within one-half mile, whereas seven minutes was required by the rules.

The *Boxer* captured No. 73 while coming out to join the flotilla and one other boat, while the *Bruiser* captured one as well.

The PHAETON was making 15 knots, but the superiority of speed of the A torpedo boats rendered their capture as impossible as the escape of the smaller boats.

July 26 the second division left Falmouth at 9 p. m. and cruised toward the Scillys.

July 27 at 4 a. m. they rejoined the SEAGULL 5 miles south of the zard and shaped course for Milford Haven. The *Thetis* was sighted at 5.30 a. m. and the flotilla prepared to attack. At 5.54 the *Thetis* fired the first gun and manœuvred at 16.5 to 17 knots to keep the boats within one-fourth of a mile. At the expiration of twenty-one minutes they were all adjudged out of action. Nos. 49, 64, and 84 each fired a torpedo at her and the SEAGULL two; the *Thetis* avoided the first and the others missed her. After the twenty-one minutes had elapsed No. 49 missed again, the torpedo passing under the *Thetis*. About twelve minutes too late, No. 79 fired a torpedo which struck the *Thetis* amidships. No. 66 did not fire and No. 76 failed owing to missfire. For a further period of forty minutes the SEAGULL was kept under fire and captured.

Within about three days thirteen torpedo boats had been captured.

July 28 the PHAETON and the remaining boats searched for enemy's vessels but found none.

July 29 the flotilla remained at Milford Haven owing to bad weather. At 10 p. m. the SPIDER, SEAGULL, and second division went out but returned on account of the bad weather.

#### FORMATIONS AND EVOLUTIONS.

The *Channel Fleet* was organized into two divisions of battleships and seven divisions of cruisers and torpedo boats. Cruiser divisions were distinguished by rings, balls, or stripes painted on the smoke pipes. Two bands on after pipe indicated the fourth division; one ball on forward pipe the fifth division, following generally the system used last year (p. 178, No. XV). The torpedo vessels and torpedo boats had the number of the division in white letters 2 feet long on either bow.

The cruising formation was: Battleships in column of divisions, natural order; distance between vessels, 2 cables; between divisions, 6; one division of cruisers 1 point on the starboard bow of the commander-in-chief; a second division similarly placed on port bow of the second in command; two divisions—one to starboard, the other to port—bearing four points on the bow, two divisions—one on either beam and one astern—all distant 1 mile from the nearest battleship. At a distance of 6 cables from the battleships the seven divisions of torpedo vessels and torpedo boats were stationed on similar lines. At night the distances were increased to 2 miles and 10 cables, respectively. The torpedo vessels were to be linking ships in case the cruisers were detailed on scouting duty in the immediate vicinity of the battle fleet. The *Channel Fleet*, being composed mainly of vessels already in commission,

did not require the elementary tactical drills necessary for the RESERVE FLEET. Scouting exercises and long distance signaling were practised frequently. There was no delay in anchoring, getting under way, mooring, or unmooring. It is probable, in instituting comparisons between the fleets, that the modern character of the *Channel Fleet* accounts for part, at least, of the difference shown in handling anchors and chains.

When the *B Squadron* anchored at Kingstown July 24 the heavy vessels anchored in column of divisions, the battleships to seaward. (See sketch, p. 27.) Cruising off Lough Swilly, column of vessels was the formation at distances as far apart as the weather would permit. An important point, and one to which too much attention can not be directed, is the handling of the *Channel Fleet* on several occasions without the usual signals. As noted by one of the best observers, "the use of signals easily degenerates into abuse, and nothing can be more totally unlike war than the bridge of a battleship during some fleet evolutions.

\* \* \* The best-trained fleet is that which can be freely handled with the minimum of signals. Evolutions under the conditions of action ought to be far more frequently practiced than is at present the case. An officer accustomed to handle a ship from his bridge only, with a dozen men around him watching to carry out his least order, would find himself in sore difficulty if confined to the inside or the lee of his conning tower."

The RESERVE FLEET was organized into two divisions, each composed of six battleships or cruisers acting as such, with scouts and linking ships attached. (See p. 21). The cruising formation was: Scouts disposed abeam and broad off the bows of the battle fleet, with linking ships between; battle fleet in column of divisions, natural order; distance between ships, 2 cables.

The principal drills and evolutions were fog drill, forming line, column, divisions, and change of course. The light vessels were exercised constantly at scouting and to test the alertness of the signal stations.

Leaving Plymouth to begin the drills and exercises, five hours were required to unmoor. The fleet anchored in Falmouth Roads in cruising formation; there was no delay unmooring or leaving the harbor. The fleet weighed together and inverted the order of vessels before clear of the anchorage. During the run up the west coast of Ireland the formation was: Column of divisions, with the scouts ahead covering a smaller area than under former circumstances; when steaming from the final rendezvous for Lough Swilly, column of vessels was taken, to contract the front as much as possible.

#### COALING.

Arrangements for coaling and coal supply seem to have been ample. As far as can be ascertained, there were no complaints on this score, nor, as last year, about the condition of coaling gear (No. XV, p. 179). Four retired officers in charge of coaling arrangements and colliers were

appointed, as last year. They were attached to the flagships. Several colliers were fitted each with two Temperlay transporters; others with one; others were without them. These last were used principally to coal the smaller vessels. Rate of coaling is an important question, for on it may depend the mobility of the fleet or the command of the sea.

Some good times were made by the *Channel Squadron* when at Port-land preparing for the manœuvres.

The following are some of the coaling times:

*Channel Fleet.*

| Name.                    | Time.         | Tons. | Average tons per hour. |
|--------------------------|---------------|-------|------------------------|
|                          | <i>Hours.</i> |       |                        |
| <i>Majestic</i> .....    | 8½            | 796   | 93.6                   |
| <i>Magnificent</i> ..... | 9½            | 870   | 91.6                   |
| <i>Resolution</i> .....  | 8¾            | 745   | 85.1                   |

In one hour the *Majestic* took in 125 tons.

*B Squadron.*

| Name.                    | Time.        | Tons. | Average tons per hour. |
|--------------------------|--------------|-------|------------------------|
|                          | <i>h. m.</i> |       |                        |
| <i>Magnificent</i> ..... | 5 25         | 521   | 96.1                   |
| <i>Blenheim</i> .....    | 4 00         | 215   | 53.75                  |
| <i>Hermione</i> .....    | 7 15         | 210   | 28.9                   |
| <i>Charybdis</i> .....   | 14 45        | 280   | 18.9                   |
| <i>Melpomene</i> .....   | 6 45         | 180   | 26.6                   |
| <i>Bellona</i> .....     | 4 30         | 140   | 31.7                   |
| <i>Latona</i> .....      | 6 35         | 180   | 27.3                   |

C SQUADRON.

|                  |      |     |      |
|------------------|------|-----|------|
| ALEXANDRA .....  | 4 45 | 167 | 35   |
| SULTAN .....     |      |     | 27   |
| BENBOW .....     |      |     | 21   |
| COLOSSUS .....   |      |     | 30   |
| TERPSICHOE ..... | 3 25 | 200 | 58.8 |
| IPHIGENIA .....  | 3 40 | 170 | 46   |

The following was the coal consumption, in tons, reported for five days in the D SQUADRON RESERVE FLEET: SANSPAREIL, 192; THUNDERER, 185; DEVASTATION, 129; DREADNOUGHT, 203; MELAMPUS, 96; PEARL, 118; INDEFATIGABLE, 125; BRILLIANT, 170; SHARPSHOOTER, 52; SHELDRAKE, 60; JASEUR, 46; JASON, 52. One week's expenditure is given as follows: ALEXANDRA, 143 tons 18 cwt.; SULTAN, 224 tons 5 cwt.; EDINBURGH, 230 tons; COLOSSUS, 225 tons; BENBOW, 196 tons. Two days' expenditure, one ordinary steaming the other full power, for

these vessels is reported, in tons, as: ALEXANDRA, 20 and 30; SULTAN, 30 and 42; BENBOW, 30 and 40; COLOSSUS, 26 and 38; EDINBURGH, 37 and 45. Coaling in Portland the D SQUADRON improved its rate of coaling. In six hours the DREADNOUGHT took in 269 tons, nearly 45 tons an hour; the DEVASTATION 225 tons in six hours, about 37 tons an hour. On the other hand, however, some of the coast-guard cruisers coaled only at the rate of 14 tons an hour.

Coaling at Bearhaven the A Squadron did not equal the record made by the Channel Fleet. The battleships took from 440 to 460 tons each. The Royal Sovereign averaged about 96 tons; the Majestic, 94; the Repulse, about 84; the Empress of India, 75, and Resolution, 62. The final coaling of the C SQUADRON took place partly at night, the battleship BENBOW beginning at 10.30 p. m. At this coaling the EDINBURGH averaged 47 tons. Much of this coaling work was very fatiguing, and instances are cited where the greater part of ships' companies had worked over twenty hours. It is reported in the press from Portland that the Empress of India received coal at the rate of 122 tons an hour, and the Majestic at the rate of 120 tons an hour. It is reported from St. Lucia, West Indies, that the cruiser Talbot was supplied at the rate of 141 tons an hour, and the cruiser Crescent at the rate of 132 tons an hour. It also is stated the German cruiser Kaiserin Augusta was coaled at Malta with 707 tons at an average of 176 $\frac{2}{3}$  tons an hour. In the other cases mentioned the quantity delivered is not given.

#### SIGNALS.

The masts of the battleship COLOSSUS were lengthened for signal purposes. For long-distance day signaling the masthead semaphore has been adopted, and for night work the multiple fiber flash lamp. The collapsible drums were not used.

Flags displayed from wire rope stretched between topmasts were used in a manner somewhat similar to that of last year (p. 181, No. XV). The search lights also were used at night. At scouting practice in the Channel Fleet each group opened to a distance of 10 miles between ships. Each leader was thus 30 miles from the flagship. It was found that in clear weather flag signaling can be carried on up to 10 miles. More precise details are wanting.

#### TARGET PRACTICE.

The usual target practice, both subcaliber and battery practice, took place. It was devoid of especial features.

#### CASUALTIES.

#### BATTLESHIPS.

BENBOW: July 13, developed minor defects in machinery; repaired at sea. July 27, slight injury to starboard H. P. indicator pipe; repaired in an hour.

COLOSSUS: July 24, while steaming into a head sea sheet chain broke adrift and chafed the bow; could not be secured until weather moderated.

DREADNOUGHT: July 19, slight defects in machinery.

EDINBURGH: July 13, cat chain carried away when weighing anchor. No damage done, though a man was at the time on the anchor.

RESOLUTION: July 17, collision with *Repulse*, scraping along her starboard side when retaking station. *Repulse* only slightly injured and a small hole in starboard side above water line. *Resolution* lost a port boat, boat davits, port accommodation ladder, and sustained other damage along port side; July 28, steering gear broke down twice.

SULTAN: July 13, capstan gear defective. As about one month would be required to put it thoroughly in order, repairs were postponed until after the manœuvres. Hand gear was used.

#### CRUISERS.

ANDROMACHE: July 23, steering gear temporarily disabled.

AUSTRALIA: July 10, defective distiller. Repaired by Keyham mechanics, but the ship did not go into port.

BELLONA: July 27, could not keep station in *B Squadron* and dropped astern, cause not ascertained. Rejoined about midnight July 28.

CURLEW: July 23, steam steering gear broke down after arrival in Torbay.

FORTH: July 9, defective distiller. Returned to Plymouth for repairs.

HERMIONE: July 28, lost overboard Assistant Engineer Good. Lieutenant Warren, the first lieutenant, jumped overboard and also was lost while attempting his rescue.

INDEFATIGABLE: July 10, eccentric sheave of steam capstan cracked. Sent in to Keyham for repairs. Rejoined July 15.

IRIS: July 8, accident to starting gear. July 11, some slight defects in machinery. Repaired by force aboard.

LANDRAIL: July 11, collision with merchant vessel *Siren*. Injured stem, fore compartment filled, but temporary repairs were made and she returned to Portsmouth. The *Siren* was cut in two and sank. Crew saved.

MELPOMENE: July 23, speed fell to 14 knots, owing to defects in machinery.

PHAETON: Trouble in keeping water in her boilers, thought to be due to insufficient loading of the escape valves to the feed pumps.

SEVERN: July 20, steam steering gear broke down, but was repaired in half an hour.

TERPSICHOE: July 25, feed pipe of forward boiler gave out. Repaired by force aboard.

THETIS: July 27, starboard engine disabled. After reaching rendezvous, sent to Queenstown for repairs.

## TORPEDO VESSELS.

*CIRCE*: July 27, dropped astern of fleet, probably owing to choked tubes.

*Harrier*: July 9, slight defect in boiler. Repaired at sea.

*Hussar*: July 27, air-pump delivery pipe broke down. Sent to Queenstown for repairs. July 28, slight injury to machinery while putting in to Queenstown for repairs. Grounded off Spitbank Lighthouse, but got off in about two hours without injury.

*JASEUR*: July 17, at 4 a. m., the cover of feed-valve box blew out. She kept station under one boiler and by 1 p. m. repairs were finished.

*JASON*: July 17, eccentric gear of port engine broke; repaired at Plymouth.

*ONYX*: July 11, slight defects in machinery; July 27, tubes choked.

*SHARPSHOOTER*: July 20, had a boat run into and capsized, but no lives were lost.

*SHELDRAKE*: July 27, could not keep station owing to choked tubes.

*SPIDER*: July 10, while convoying torpedo boats, cracked main steam pipe; compelled to return to port; repaired at Keyham.

## TORPEDO BOATS.

*Daring*: July 9, breakdown in armature; July 20, defective condenser; repaired at Bearhaven, working day and night.

*Decoy*: July 14, defective slide valve, piston rod of feed pump broken; repaired at Plymouth and rejoined July 15 at 5 p. m.; exceptional rapidity; July 23, developed a defect in port engine; quickly repaired.

*Havock*: July 8, a small fire occurred in bread room; easily extinguished, but little damage done.

*Opossum*: This vessel developed so many defects during trials prior to the manœuvres that she was withdrawn from the list of mobilized vessels and was replaced by the *Hunter*. July 9, while the *Opossum* was making a run for the instruction of men of the engineer's force she ran on a ridge of rocks off Scilly and damaged her propeller blades.

*Porcupine*: July 29, engine disabled; repaired at Londonderry.

*Skate*: July 9, bracket of starboard shaft broke while undergoing trial in the channel and several bottom plates were loosened. The after compartment was nearly filled, but the vessel succeeded in getting back to harbor. The *Skate* was to be held in reserve to take the place of any torpedo boat absolutely disabled.

**No. 27**: July 30, fouled the *SPIDER* and sustained sufficient damage to require docking.

**No. 50**: July 29, slight defects in engine; repaired by 8 p. m.

**No. 52**: July 19, defects in feed pipe; sent to Plymouth for repairs.

**No. 63**: July 10, leaky condensers.

**No. 65**: July 10, developed defective steering gear; lost a man overboard off Milford; the commanding officer, Sublieutenant Viscount Kelburne, nearly lost his life trying to rescue the man.

**No. 68:** July 10, leaky condensers.

**No. 73:** July 9, developed defects in the machinery and was detained at Chatham for repairs.

**No. 76:** July 8, propeller blades came unkeyed and fell away from box. She was towed into Portsmouth by **No. 91**.

**No. 79:** July 11, steering gear defective. By working all night, the Plymouth mechanics got her ready to leave with the rest of the flotilla.

**No. 81:** July 26, while patrolling off Bishops Light, seriously damaged the stern plates through the dropping of the rudder. It was temporarily secured and she reached Milford Haven during the afternoon of July 27. She took no further part in the manœuvres.

**No. 87:** July 26, lost a torpedo during drill.

**No. 94:** July 6, while making passage from Portsmouth to Sheerness came into collision with schooner *Reaper*. Both were damaged. Had the sea been rough the schooner would have foundered. **No. 94**, however, was able to tow her to Portsmouth. The bow torpedo tube flap of **No. 94** was bent forward, smoke pipe crushed, and she sustained other damage. The crew was transferred to **No. 49**.

**No. 95:** July 24, cylinder damaged; rejoined flotilla July 27 at Milford Haven.

#### ADDITIONAL.

December 24, a torpedo boat attack took place at Valetta, Malta, upon the battleships *Nile* and *Collingwood*, of the Mediterranean fleet. The battleships rigged out their torpedo nets and made other preparations for defense, and masked all lights. A portable search light and two 3-pounder guns belonging to the *Vulcan* were placed to represent a battery on a point of land covering the approach to the anchorage. The *Astræa* took up a position nearly opposite the *Vulcan's* battery and represented another fort covering the approach. The attack was to be made between the two forts. The portable search light was fixed on a bearing to seaward and its beam was intersected by that of a fixed light from the *Astræa*; a belt of light thus was formed which the boats would be compelled to cross. Other search lights from the *Astræa* were used for sweeping. A single torpedo boat was allowed to be two minutes under fire before being considered out of action, an additional half minute being allowed for every other boat in company.

Five torpedo boats left the harbor during the afternoon with instructions to make the attack between 9 and 10.30 p. m. The sweeping lights failed to find them, and they were not seen until they entered the fixed sector. The torpedo boats attacked in two divisions of three and two boats, respectively. Had they attacked together they might have reached the *Nile* in the four minutes that would have been allowed them. As it was, in an effort to keep within the time allowed, the torpedoes were discharged in from two and one-half to three minutes at too great a range, not one of the torpedoes reaching the ship. Several torpedoes did not run, the tripper failing to act.

Under the rules the attack was a complete failure, but it is thought probable that a real attack would not be stopped in two minutes, as the boats presented what is designated as "a small and ghost-like target." The most important point to be considered is the failure of the sweeping lights to discover the boats, though this failure may be accounted for in part, perhaps, by the screen made by the fixed beams. On this point details are wanting.

#### COMMENTS.

The number of vessels taking part in the manœuvres of 1896 (105) was greater than at any time since 1890. More cruisers have been engaged several times, but the number of torpedo vessels and large torpedo boats, the so-called "destroyers," was greater than ever before.

The same objections are made each year to the mobilization. Within narrow limits the time is known and preparations are making for months before. From this point of view the time required to mobilize certainly is misleading, but there can be no doubt of the efficiency gained by the practical working out of the system. When a vessel has been repaired thoroughly and work on her is finished, the time of the year at which she is put in commission is not material.

The only valid objection to the English method of mobilization can be made not against the method itself, but against the system of "stealing" so prevalent among naval men whenever time can be gained.

If no preparations were permitted not embraced in the general scheme, the time test would be a fair one and war conditions would be approximated more nearly than they now are. The mobilization worked very smoothly, no hitch occurring either at commissioning, equipping, or leaving the yards. Evidently this part of the work is becoming more and more systematized each year.

There is a sameness about the preliminary drills and exercises inherent in the requirements. The efficient man-of-war, within her sphere, must develop "smartness" of officers and men. Clearing ship, man and arm boats, collision drill, general quarters, and other drills pertaining to a ship, as such, are matters of detail and practice; they correspond to the schools of the squad and company on shore. It is the same in a larger sense with the fleet tactics and evolutions. Here, however, the unit ship is part of the unit fleet, as a company of infantry is part of a battalion. It is superfluous to enter into the details of the preliminary work, for it was devoid of especial features and each year must be the same.

The problems set for the rival fleets were interesting. A fleet, the first part of which is ready for battle, and the second part preparing to reinforce the first part, is watching a fleet similarly divided. The first part of the home fleet is superior in force and speed to the first part of the hostile fleet; the second parts are equal, except that the home squadron is superior in speed. Superiority of power and speed is with the united home fleet as well.

From Bearhaven the hostile squadron is to be "gotten out" of Mil-

ford Haven—is to be brought to action and driven back. The squadron is not to be allowed to effect junction with the second hostile squadron organizing in Torbay. For forty-eight hours after the declaration of hostilities the second squadrons can not leave port, but the hostile commanders in chief do not know this until twenty-four hours have elapsed. Should junction be effected, the home fleet is to prevent the hostile fleet from entering Lough Swilly.

The language is plain enough, but the meaning is so far obscured that Vice-Admiral Kerr is said to have misunderstood entirely what was meant by the first phase. Apart from the physical movement it is hard to understand what is meant by “to get out” a squadron. C at anchor in a friendly port could remain there indefinitely so far as A was concerned. Fleet C at Milford Haven, watched by the cruisers and destroyers of Fleet A, which was lying in readiness at Bearhaven, was interpreted to mean that A could not pursue C until informed by scouts of C’s movements. It is difficult to reconcile this interpretation with the objective of “getting C out” and defeating him. A knew there was a force D at Torbay, though not aware of its temporary immobility. He also knew, however, of an equal and friendly force at Kingstown. From Bearhaven to Milford Haven is 190 miles, which would require the scouts to steam 380 miles to convey any information. At 18 knots twenty-one hours would be consumed in this operation, making no allowance for time required to obtain accurate information. From Bearhaven to Lands End is 195 miles, and from Milford Haven to the same point is 105 miles. From Lands End to Torbay is also 105 miles. In other words, C was 85 miles nearer the point of greatest strategic importance.

Whatever meaning may be attached to the words “watched” and “lying in readiness,” it is manifest that nothing possible to A can affect C, either as to “getting him out” or keeping him in. A fleet desirous of leaving a friendly port can do so at any time if the observing fleet is not actually present. The knowledge obtained by the observing fleet is dependent on the ability of the scouts to maintain touch; to do this they must be able to fight and to drive back the scouts and cruisers, trying to mask the real movement. In order, then, that an observing fleet can lie at anchor the scout force must be powerful enough to overpower the corresponding hostile force and numerous enough to send information without weakening itself to a dangerous degree.

If the home scouts do overpower the hostile force the latter can be reinforced by one or more of the battle fleet and the home cruisers driven off. This amounts to saying that observation to be effective must be blockade.

The only way “to get C out” was to remain at anchor; the only way to defeat C was to reach some point before him that he must pass. A, at 17 knots, was nearly twelve hours from Lands End, while C, at 12 knots, was only nine hours away; besides this the unknown D SQUADRON was distant only nine hours from the same point. The first part of the

manœuvres appears to have been certain for C and impossible for A, for in the preliminary manœuvres B, as a factor, did not count. Even had Vice-Admiral Kerr put to sea at once he could not hope to catch C. This, however, does not excuse the failure of the A cruisers to obtain information and to convey it quickly to the commander in chief. The cruisers had between ten and twelve hours in which to reach Milford Haven before C could move. At their rated speed of 20 knots this was possible for the *Apollo*, *Naiad*, and *Sirius*, the First Division, but doubtful under service conditions. Still they could have discovered the departure of C not later than 2 a. m. From Milford to Kingstown is 103 miles, or, at 18 knots, six hours; from Milford Haven to Carnsore Point is 55 miles, or, at 18 knots, three hours. A should have known of C's escape not later than 9 a. m. July 25, whereas the information reached the admiral by way of Carnsore Point—Kingstown—Bearhaven at 3 p. m. At 1 a. m. July 25 the torpedo boat *Boxer* met a *squadron* in such a locality that it could be no other than SQUADRON C; in fact, the *Boxer* claimed to have torpedoed the SULTAN, by name, yet this important information was not imparted until after it ceased to be of value.

Vice-Admiral Seymour acted throughout with admirable promptness. When hostilities were declared he was ready to go to sea, which he did literally "on the stroke of the bell," and effected junction in the shortest possible time.

At the beginning of hostilities the A scouts should have been off Milford Haven, where in time of war they undoubtedly would have been. The time given A was too short in which to take up the position of watcher. The fault lay in the preparation of the scheme and not in the execution of it.

Ignorant as he was of the movements of B, Vice-Admiral Seymour took every precaution to protect his right flank from sudden attack. St. Georges Channel was reconnoitered thoroughly before the battle fleet left Milford Haven.

For the first and second objectives success was with C.

Rear Admirals Powlett and Wilson seem to have misinterpreted their instructions. It is stated distinctly in the general scheme that "all ports used as bases for the fleets are torpedo-boat proof," yet elaborate preparations to resist attack were made and all hands were on the qui vive for nearly forty-eight hours.

Seventeen torpedo boats were employed protecting B at Kingstown, depriving the *Channel Fleet* of that much scouting force that easily could have reached Milford Haven before the departure of C.

The instructions given the C cruisers were complete: covering a front of 45 miles on a NW.-SE. line, they were to keep ahead of the battle fleet and drive back the enemy's cruisers. When Lands End would be reached the scouts and cruisers would remain to gather information.

The second phase called for the attack and defeat of A by the RESERVE FLEET. At midnight July 25 Vice-Admiral Kerr knew that D SQUADRON could not leave Torbay before midnight July 26,

and a position was taken up south of the Scillys, hoping to intercept C, but C at that time was safe in Torbay. A steered up and down the channel and returned to Lands End about 6 a. m. July 27. It was at this time Vice-Admiral Kerr received information of the junction of C and D. With his usual promptitude, Vice-Admiral Seymour was moving with his available force the instant the rules permitted. When the RESERVE FLEET was 20 miles from Scilly scouts reported A had been seen at 11 p. m. steering NW. from Scilly, so that the attempt to attack A was given up. At 7 a. m. the hostile squadron was about 30 miles distant (*see chart*), though A's superior speed would have enabled him to escape. The only method, apparently, by which A could have been brought to action and defeated would have been by allowing the RESERVE SQUADRON extra speed or by reducing A's speed temporarily under the rules, as was done in the French naval manœuvres of 1895 (p. 195, No. XV). With the escape (so called) of A the situation changed and the *Channel Squadron* became at once the superior. Vice-Admiral Seymour knew that the junction of A and B was assured and that they were somewhere to the northward of Lands End. Would Vice-Admiral Kerr attempt to block St. Georges Channel or would he make the best of his way to Lough Swilly? If the latter, how would he go? Would he go up the east coast of Ireland or the west coast? From Lands End to Lough Swilly by the east is 390 miles; by the west, 495 miles, of which 170 miles is the distance from Lands End to Cape Clear. Apparently the game was in the hands of the *Channel Fleet*. B came down the channel to meet A, and junction was effected about 2 p. m. July 27, at which time the RESERVE FLEET was standing for Lands End. The AUSTRALIA, cruiser, was captured about this time, but she had succeeded in getting word to Sennen Cove of A's movements that morning. With her capture all aggressive action on the part of *Channel Fleet* cruisers appears to have ceased, and until the RESERVE FLEET was steaming into Lough Swilly no definite reports of its movements reached Vice-Admiral Kerr. From July 26 until the morning of July 30 not a hostile cruiser had been seen by the battleships of the RESERVE FLEET, yet there were nineteen cruisers and torpedo vessels and twenty torpedo boats trying to find them. Standing to the southward and westward after passing the Scilly Islands a second time Vice-Admiral Seymour, following out a course of reasoning closely corresponding with Vice-Admiral Kerr's movements, headed up to round Cape Clear, but well to the southward. The *Channel Fleet* reached the cape about 8 p. m. July 27, and extended search about 20 miles to the southward. Night lookout is difficult at best, and the range of observation could not have extended over a mile beyond the most distant vessel. It was not until twelve hours later that the RESERVE FLEET passed the cape 100 miles to the southward. Two considerations evidently influenced Vice-Admiral Kerr in the course taken by him—first, he avoided a long stretch of hostile coast infested by torpedo boats, and, secondly, he obtained two chances to catch the RESERVE FLEET, one at Cape Clear

and the other at Lough Swilly. The *Channel Fleet* reached Lough Swilly at midnight July 28, and hostilities were not to cease until 8 a. m. July 30. It is well to notice the remarkable performance of the *Channel Fleet* in steaming a distance of nearly 500 miles at an average speed of nearly 14 knots.

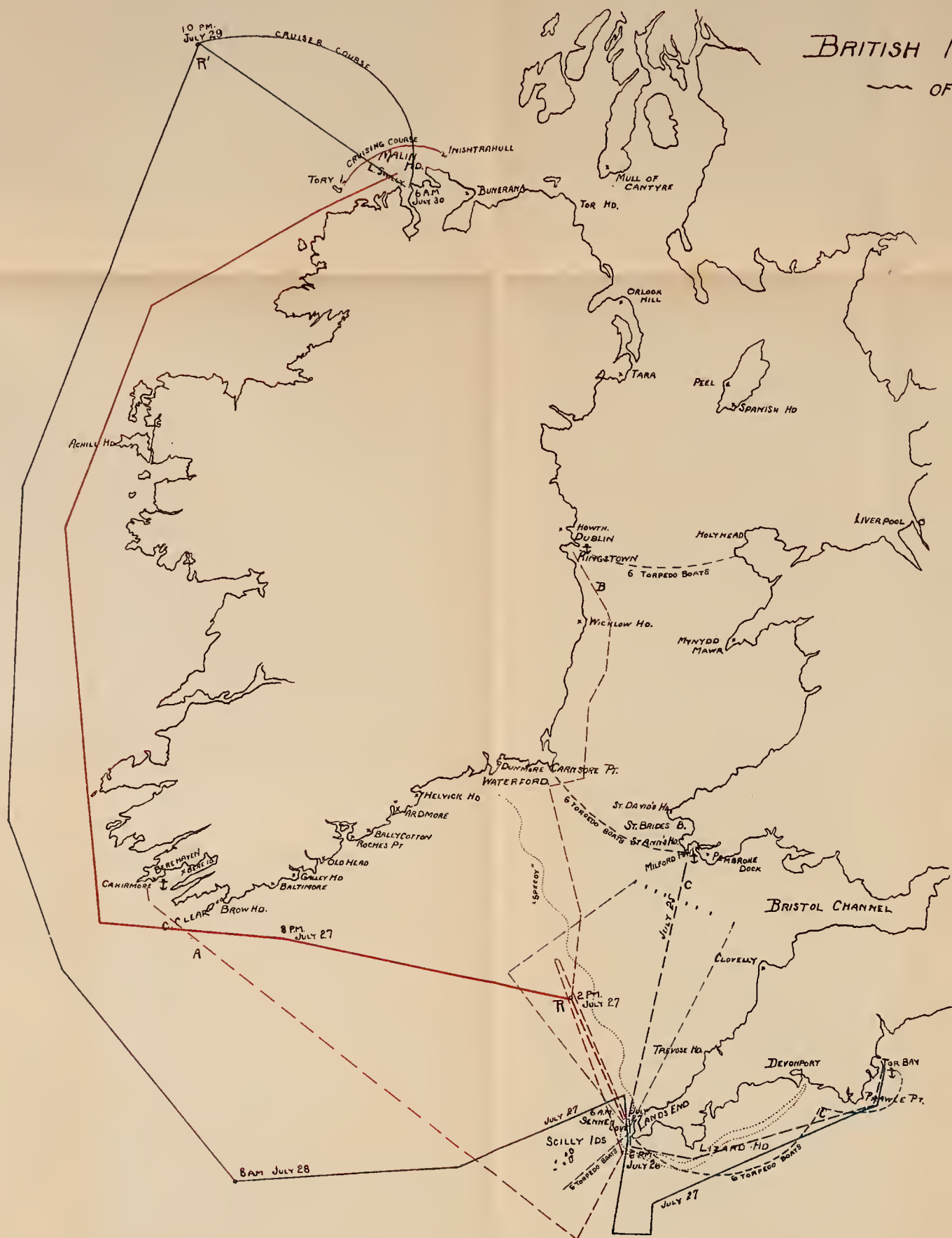
The RESERVE FLEET reached the rendezvous with ten hours to spare in which to reach harbor after a run of 70 miles to be made in thick weather. The harbor was reached and the *Channel Fleet* eluded.

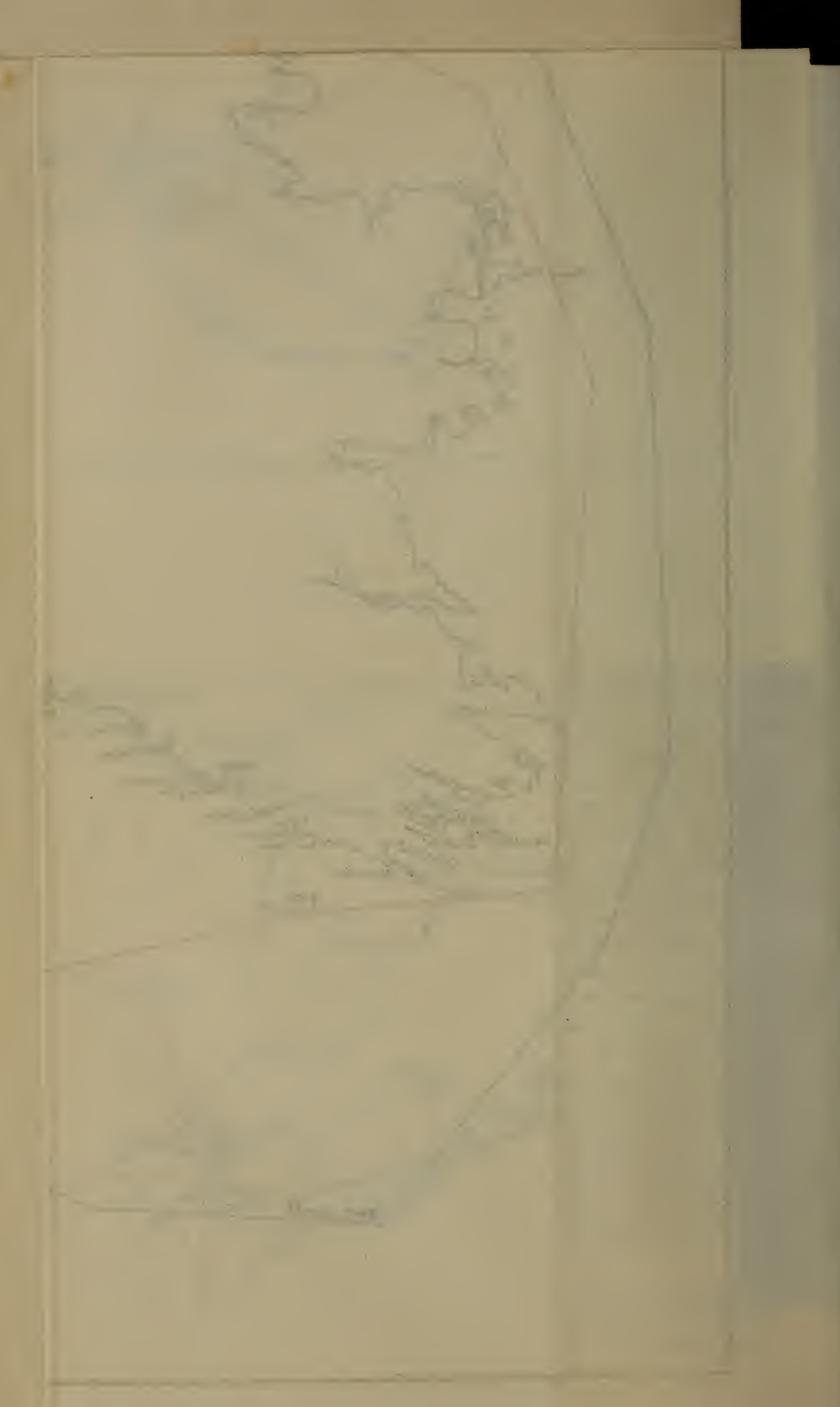
This rapid résumé, even at the risk of repetition, is necessary to a proper understanding of the conditions.

At first sight the advantage rested with the *Channel Fleet*, and the task set the RESERVE FLEET was impossible. With speed, power, homogeneity, and numbers against him, not to speak of the advantage of situation, Vice-Admiral Seymour was presumed crushed before the strategical exercises began. This was not so. Either intentionally or by error the first tasks set Vice-Admiral Kerr were impossible, as already has been shown. The capture of the *A Squadron* by the RESERVE FLEET was equally impossible, so that it would seem as if the conditions required amounted only to this, that a larger and faster fleet is to attempt to prevent a weaker and slower fleet from entering a certain harbor within a certain time. This was not done, and great credit is due Vice-Admiral Seymour for his success, but the conclusions drawn by the English press seem to be hasty and ill considered. Vice-Admiral Kerr was fifty-six hours in a dangerous situation, with a large fleet of heavy armored vessels. It is one thing to remain at such a post in time of war, but a very different thing in naval manœuvres. Many a man will take risks in war that in peace he would regard as foolhardy. As stated by the late Vice-Admiral Tryon, "Risks that are not only justifiable, but are demanded during war, are not justifiable during peace." Without great risk the ships could not be kept close up at night, particularly during thick weather. The terrible effects produced by a collision in fog between the vessels of two such fleets readily can be imagined. Fortune favored the RESERVE FLEET, and it approached from the westward when the *Channel Fleet* was at the extreme eastern end of the patrol ground and farthest at sea. Neither fleet saw the other until one was safe from pursuit. To say this establishes the principle that a fleet can enter any port at any time in the face of a superior enemy can not be true; no principle can be established by a series of fortuitous circumstances occurring also under special conditions. Undoubtedly, however, the personal factor enters. It is unquestionable that the success of the RESERVE FLEET was due partly to the assumption of risk and responsibility by Vice-Admiral Seymour, abundantly justified by the landfall made after a run in fog and darkness.

Under the "meeting" rules the *Channel Fleet*, to be successful, had to meet the RESERVE FLEET at least 20 miles from Lough Swilly and remain within 3 miles of it for at least two hours. Of course, such

— OF 1896 —







Forth

ST. GEORGE'S CHAN.

HARRIER

Speedy

Bellona

Forth

130 p.m.

1.22 PM

Midnight  
26th.

SCILLY IS.

PRILANT

INDEFATIGABLE  
7 AM.

POSITION A.M. THUS -  $\infty$   
P.M. -  $\infty$

P.M. - 8

FROM ADMIRALTY  
OFFICIAL  
REPORT ~

BRITISH NAVAL  
MANŒUVRES  
OF 1896 ~~~~

TREVOSE MO

♂ AUSTRALIAN  
TERPSICHORA

♀ Apollo  
 ♀ Naiad  
 Sirius

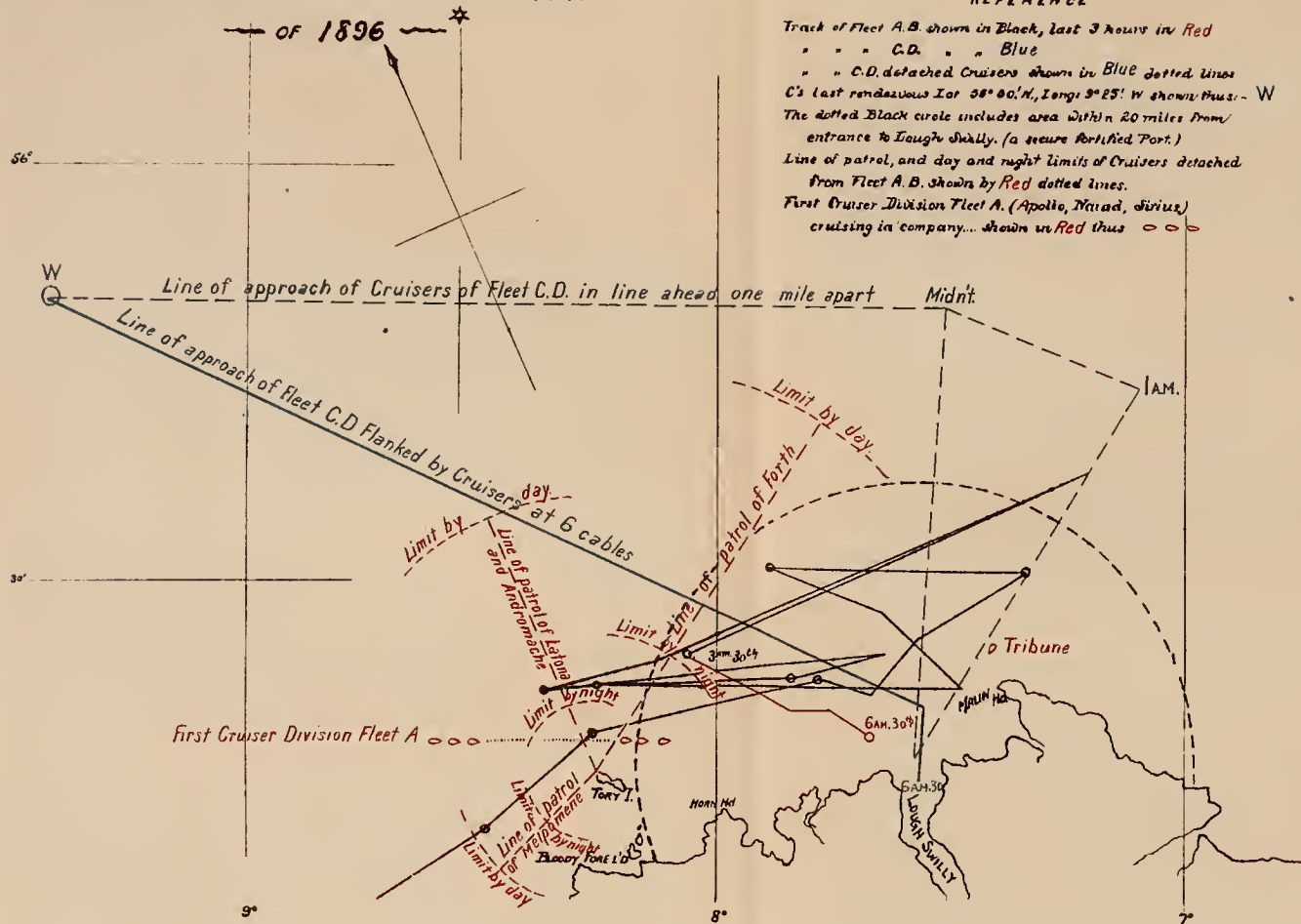
LIZARD NO.

W. 1000



FROM ADMIRALTY OFFICIAL REPORT.  
BRITISH NAVAL MANŒUVRES

OF 1896



REFERENCE

Track of Fleet A.B. shown in Black, last 3 hours in Red  
 " " " C.D. " " Blue  
 " " C.D. detached Cruisers shown in Blue dotted lines  
 C's last rendezvous for 58° 00' N, Long 5° 25' W shown thus: - W  
 The dotted Black circle includes area within 20 miles from  
 entrance to Lough Sully. (a secure fortified Port.)  
 Line of patrol, and day and night limits of Cruisers detached  
 from Fleet A.B. shown by Red dotted lines.  
 First Cruiser Division Fleet A. (Apollo, Minotaur, Sirius)  
 cruising in company... shown in Red thus ○ ○ ○

FROM BOWEN'S CORNER  
 TOWARD THE PLANTATION

— 1888 —







rules must be made for guidance and comparison, but nobody will deny that in actual war it would have been very difficult, if not impossible, for the RESERVE FLEET to have made Lough Swilly.

The sharp contrast between strategy and tactics, as illustrated by manœuvre conditions and by what probably would take place in war, is shown most forcibly by the uncertainties and ambiguities of the first phase and the final objective of the *Channel Fleet* in the third phase. In war the fleet "under observation" would have been observed in some way. Hostilities do not develop in time of profound peace at a given instant, so that no nation superior on the water, as England undoubtedly is, would be caught as the conditions required Vice-Admiral Kerr to be caught, with a large cruiser force unable to perform the duty assigned it. No successor to the traditions of Nelson would engage in a race with an inferior hostile fleet to reach a certain port first so as to bar the entrance. In war the principal objective would have been the fleet itself, and Vice-Admiral Kerr undoubtedly would have sought out and fought the enemy with every prospect of success. Under the rules the fleet was of but secondary importance.

Apparently, the only principle established, if principle it can be called, is that a fleet of observation at anchor neither can accelerate, retard, nor prevent the exit of a hostile fleet from a port not actually blockaded.

The importance of scouts and cruisers is more strongly emphasized than in the past. These vessels are the eyes of the fleet. In war, the only reliable information they will obtain must be fought for; they must break through outer lines to find out real conditions, and they must screen friendly movements by driving off the enemy's vessels engaged on similar duty to their own. From the nature of the final operations the torpedo boats were thrown out of active participation in the work. The only influence exerted by them was an indirect one, in that they helped to drive the *Channel Fleet* around the western side of Ireland.

Apart from this indirect result, the torpedo boats appear to have been beaten at their own game by the so-called "destroyers."

Disposed along the coast where the torpedo boats were known to be, the "destroyers" kept the sea at all times and prevented the torpedo boats from leaving port. If this be true, the torpedo boat is passing away, and its rôle will be assumed by the larger and abler boat that has overpowered it.

Signal-station information is not always reliable. It was reported from Brow Head that a fleet had passed Cape Clear about 2 p.m. July 28, whereas both fleets were at this time well up the Irish coast, and the RESERVE FLEET had crossed that meridian about 100 miles to the southward. To transmit information communicated to them, however, they are invaluable.

Nothing was learned as to the relative importance of the smaller or larger torpedo boats.

The one point, and apparently the only one, brought out by the manœuvres is the necessity for a larger cruiser force.

## THE FRENCH NAVAL MANŒUVRES.

As is usually the case, the naval manœuvres took place in the Channel and Atlantic, and at the same time in the Mediterranean. The manœuvres were divided into three periods, extending from July 9 to July 30.

## CHANNEL AND ATLANTIC.

The force employed was composed of the Northern Squadron, four torpedo boats mobilized at Brest and at Cherbourg, and by the mobile defenses of the maritime districts of Cherbourg, Brest, L'Orient, and Rochefort.

The exercises were divided into three periods:

First period. Preliminary exercises, to terminate July 13.

Second period. Attacks by the fleet to test the efficiency of the coast defense in the Havre, Calais, and Dunkirk districts; one part of the fleet to overhaul at Dunkirk, the other at Boulogne, July 15 to 20.

Third period. Forcing of the Straits of Dover by a hostile squadron, July 25 to 30.

The following-named vessels took part in the manœuvres:

*Vice-Admiral Regnault de Prémèsnil, commander in chief; Rear-Admiral de Courtilhe, commanding Second Division.*

| Ship.                          | Class.                               | Date of completion. | Displacement. | Guns, main battery. | Maximum speed. | Complement. |
|--------------------------------|--------------------------------------|---------------------|---------------|---------------------|----------------|-------------|
|                                |                                      |                     | <i>Tons.</i>  |                     | <i>Knots.</i>  |             |
| <i>Hoche</i> (flag).....       | Battleship.....                      | 1886                | 11,300        | 16                  | 15.92          | 631         |
| <i>Amiral Tréhouart</i> .....  | .....do.....                         | 1893                | 6,610         | 10                  | 17.5           | 329         |
| <i>Bouvines</i> (flag).....    | .....do.....                         | 1892                | 6,610         | 10                  | 16.05          | 315         |
| <i>Jemmapes</i> .....          | .....do.....                         | 1892                | 6,590         | 6                   | 15.68          | 299         |
| <i>Valmy</i> .....             | .....do.....                         | 1892                | 6,500         | 6                   | 15.91          | 299         |
| <i>Dupuy de Lôme</i> .....     | Armored cruiser.....                 | 1890                | 6,300         | 8                   | 20             | 521         |
| <i>Chasseloup Laubat</i> ..... | Protected cruiser, second class..... | 1893                | 3,725         | 10                  | 18.77          | 350         |
| <i>Friant</i> .....            | .....do.....                         | 1893                | 3,725         | 10                  | 19             | 354         |
| <i>Coëtlogon</i> .....         | Protected cruiser, third class.....  | 1888                | 1,848         | 4                   | 19.5           | 200         |
| <i>Epervier</i> .....          | .....do.....                         | 1886                | 1,240         | 5                   | 17.3           | 148         |
| <i>Surprise</i> .....          | Gun vessel.....                      | 1895                | 627           | 2                   | 12             | 99          |
| <i>Cassini</i> .....           | Torpedo vessel.....                  | 1894                | 958           | 1                   | 21             | 139         |
|                                |                                      |                     |               | <i>Tubes</i>        |                |             |
| <i>Lance</i> .....             | .....do.....                         | 1886                | 395           | 2                   | 18             | 63          |
| <i>Salve</i> .....             | .....do.....                         | 1886                | 395           | 2                   | 18             | 63          |
| <i>Ariel</i> .....             | Torpedo boat, first class.....       | 1894                | 120           | 2                   | 23.5           | 27          |
| <i>Aquilon</i> .....           | .....do.....                         | 1894                | 120           | 2                   | 26.17          | 27          |
| <i>Lancier</i> .....           | .....do.....                         | 1892                | 120           | 2                   | 25.8           | 27          |
| <i>Tourbillon</i> .....        | .....do.....                         | 1892                | 106           | 2                   | 20.5           | 27          |
| <i>Grenadier</i> .....         | .....do.....                         | 1892                | 120           | 2                   | 25.25          | 27          |
| <i>Zouave</i> .....            | .....do.....                         | 1892                | 120           | 2                   | 20.12          | 27          |
| <i>Dauphin</i> .....           | .....do.....                         | 1894                | 120           | 2                   | 25.2           | 27          |
| <i>Averne</i> .....            | .....do.....                         | 1893                | 120           | 2                   | 24.97          | 27          |

## FIRST PERIOD.

The second division, consisting of the *Bouvines*, *Jemmapes*, *Dupuy de Lôme*, *Chasseloup Laubat*, and the *Salve*, was concentrated at Cherbourg. June 30th the *Coëtlogon* was sent to Brest to bring the torpedoes for the *Bouvines* and to convoy the *Lancier*. The *réservistes* were called out for July 6. Two seagoing torpedo boats, the *Grenadier* and *Zouave* and several torpedo boats of the mobile defense were mobilized.

The first division, consisting of the *Hoche*, *Valney*, *Admiral Tréhouart*, *Friant*, *Epervier*, *Lance*, and *Ariel*, anchored June 30 off Brest, having just arrived from Ferrol. Two seagoing torpedo boats, the *Dauphin* and *Averne*, were mobilized at Brest, but none of the torpedo boats of the mobile defense. The *réservistes* were called out July 6, also, to join at Brest. More reported at these two ports than were required by the ships, and the remainder were drafted partly to vessels undergoing trial and partly to ships in harbor; the crews of the torpedo boats were completed from the active force.

July 9, embarkation of men and stores was completed and the two divisions went to sea. The first-class torpedo boats were placed under the command of the captain of the *Epervier*.

The general program for the first period embraced target practice, evolution, and combined exercises with the torpedo flotilla. Douarnez Bay was the principal theater of the operations of the first division; while the St. Vaast la Hogue Roads served a similar purpose for the second division. Six torpedo boats from Rochefort, and also six from Lorient, took part with the first division.

The *Dupuy de Lôme* took no part in the manœuvres. She was in the hands of the navy-yard authorities, preparing for the embarkation of the President aboard early in August.

The second division was attacked successfully July 10 by the mobile defense torpedo boats. Advantage was taken of foggy weather. On the other hand, July 11, the squadron succeeded in evading attack by keeping under way all night, steaming without lights.

The order of exercises contemplated visits to ports along the coast between Brest and Cherbourg until the two squadrons met in a simulated action, after which they were to return to port, but this part of the program was not carried out. The first division anchored at Brest July 12, and the second division at Cherbourg the same day. Preparations for sea were made at once to interfere as little as possible with the national fête July 14.

## SECOND PERIOD.

July 15 both squadrons weighed early in the morning, junction to be made at sea. The *Aquilon* and *Lancier* were left at Cherbourg, where they were joined that night by the *Epervier*, accompanied by the

*Ariel*, the *Dauphin*, and the *Averne*. After an exercise, July 16, to prepare for their future work, the torpedo-boat flotilla and five Cherbourg torpedo boats left port, July 17, to the eastward for Dunkirk and Boulogne, which were to be their bases during the third period when defending the northeast coast.

The two main divisions searched for each other by means of their cruisers, using long-distance signaling and electric lights. Junction was effected at night. July 16 the fleet anchored at 6 p. m. in Quiberon Bay, near Portaliguen. Six torpedo boats of the mobile defense from Lorient and a like number from Rochefort had preceded the fleet.

Torpedo-boat attacks were made during the night upon the fleet. Landing parties, torpedo target practice, and other drills were practiced. One day was devoted to navigating the passes around Belle Isle and Quiberon Bay, the twelve torpedo boats and the cruisers *Friant* and *Chasseloup Laubat* taking part. An engagement took place between these torpedo boats, the *Salve* and *Lance*, and a number of boats from the fleet. The different sections of the mobile defense of Havre, Calais, and Dunkirk were attacked.

### THIRD PERIOD.

The fleet was organized into three divisions as follows: First division (*A1*): *Hoche*, *Amiral Tréhouart*, battleships; *Friant*, cruiser; *Lance*, torpedo vessel. Second division (*A2*): *Valmy*, *Jemmapes*, battleships; *Chasseloup Laubat*, cruiser; *Cassine*, *Salve*, torpedo vessels; *Surprise*, gun vessel. In addition to *Squadron A* were the *Epervier* and seven seagoing torpedo boats. ENEMY, third division: DIVISION B, BOUVINES, battleship; DUPUY DE LÔME, COËTLOZON, cruisers.

### THEME.

B must be at Dunkirk, *A1* at Brest, *A2* at Cherbourg, July 22 at 6 a. m. The *A1* torpedo boats at Boulogne, the *A2* torpedo boats at Calais, July 22 in the evening.

Hostilities to begin at midnight, July 24. SQUADRON B must cross the Folkestone-Gris-Nez line some time between 9 a. m. July 25, and 6 a. m. July 26. B must prevent the junction of *A1* and *A2*. The hours at which they leave port are not known to B, but at all hazards B must assure himself whether or not *A2* has left Cherbourg. Speed of *A* 11 knots; of B 12 knots. B must attempt to bombard various points along the coast between Barfleur and Gris-Nez after knowing *A1* and *A2* have effected junction. *A2* can not weigh from Cherbourg except by order of the commander-in-chief, or knowing that B has forced the line. Cherbourg can defend itself, and, if aided by *A2*, can not be blockaded by B. Finally, B must recross the line before 8 a. m.

July 29. The torpedo-boat flotilla, reenforced by three of the Dunkirk boats, to watch the Folkestone-Gris-Nez line, to attack B if possible, and to notify the commander in chief of the enemy's movements.

In the original program hostilities had been restricted to the twelve hours beginning July 26, but the time was advanced, owing to the President's visit.

#### EXECUTION.

July 21, A2 left Quiberon at 1 p. m. and moored in Cherbourg Harbor July 23, at 6 a. m. The *Epervier* and nine torpedo boats left Havre at the same time. July 22, the *Lance* arrived at Brest and left the following day. July 23, A1 anchored off Brest. B anchored at Dunkirk.

July 25, at 10.40 a. m., B passed the straits and appeared off Cherbourg, where he cruised until 4 a. m. July 26, when he steamed off to WNW.

Notified by Vice-Admiral de Prémèsnil, A2 left Cherbourg about noon and steered to the north of Batz. A1 left Brest at 5 p. m. and junction was effected near the rendezvous previously chosen off Batz, at 11.30 p. m. Course immediately was shaped for Cherbourg.

July 26, the enemy was sighted near the Hève about 2 p. m., steering for Havre. A visited Dunkirk and crossed toward Dover, endeavoring to cut off B, but the latter, owing to superior speed, drew away at will and disappeared about 8 p. m. to the northwest. When B crossed the line A was 40 miles astern. The same night B crossed the line from west to east and shortly afterwards recrossed without the torpedo boats being able to check him.

Badly informed by the semaphores and unable to maintain contact through want of fast cruisers, A cruised before Cayeux or Boulogne, or on a line north 50 degrees from Cayeux, or before Barfleur. During this time B again appeared, July 27, in the afternoon, before Barfleur, and later before other ports along the coast, and simulated bombardment. July 28, at 2 a. m., B crossed the line and almost immediately recrossed it. B, however, at 4.30 p. m., anchored in Cherbourg Harbor and Rear-Admiral de Courtille announced that the manœuvres had ended. The A fleet anchored at Brest and the *réserveistes* were discharged. Preparations were begun by the second division of the Northern Squadron to coal and provision, so as to reach Havre August 2.

#### CASUALTIES.

*Cœtlogon*, protected cruiser, second class, July 11, slight injury to machinery.

*Surprise*, gun vessel, unable to keep the sea with A2. Sent to Brest; could not make 11 knots in moderate sea.

No other casualties reported.

## COMMENTS.

Upon the second period the only comment necessary seems to be embodied in a report made on the subject of coast defense by Vice-Admiral Cuverville, prefect maritime, and referring to these same manœuvres: "While in principle," he writes, "the defense of the territory comprising coast and ports belongs to the war department, public opinion will place upon the navy a large part of the responsibility for events of which the coast will become the theater." In other words, that the proper defense of the coast is not local, but general, and must be in the hands of the navy.

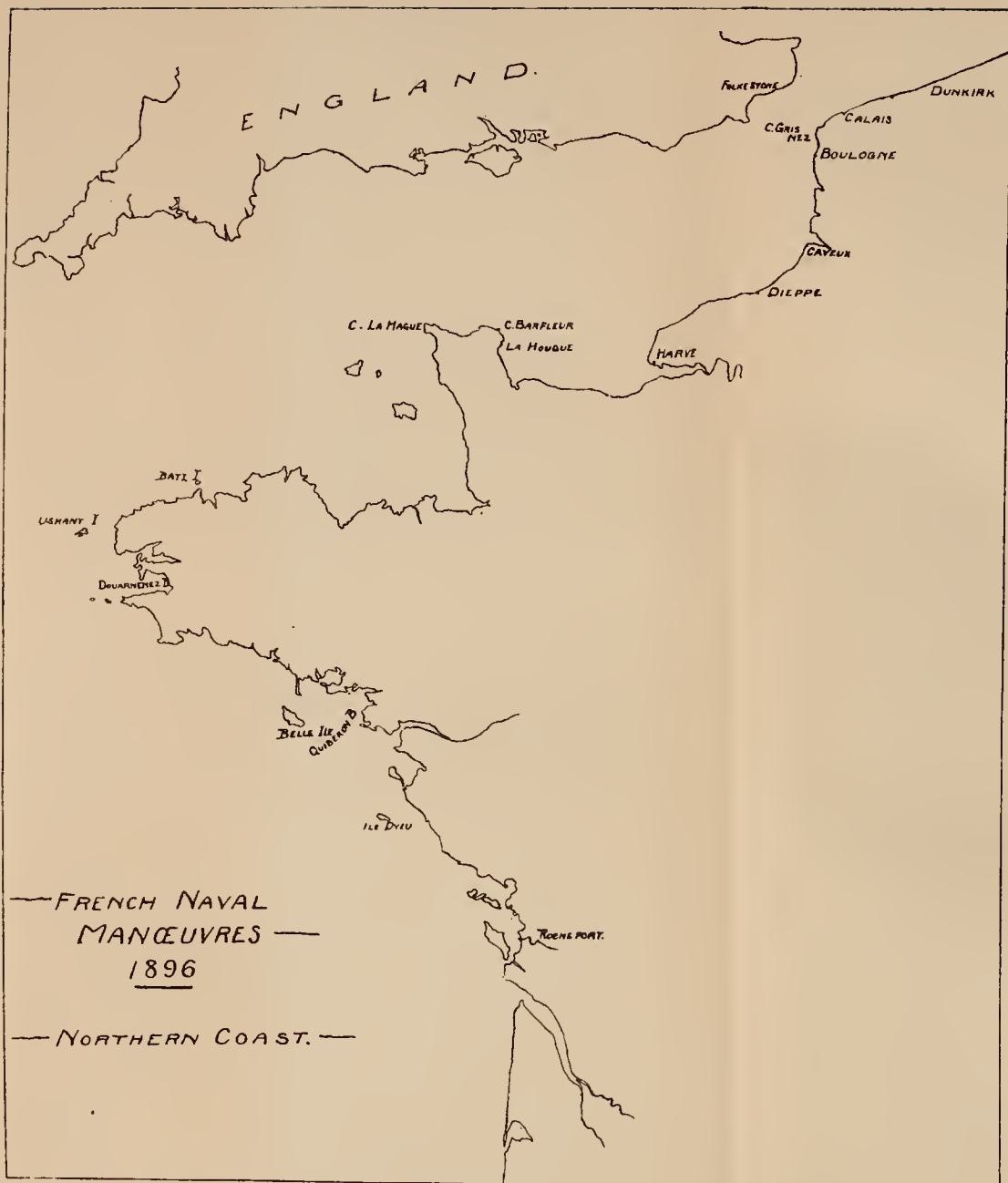
On this subject the English nation practically is unanimous. It would be well for France to adopt the same views.

Where so many details are lacking it is almost impossible to draw conclusions. It is, however, certain that during the third period B came and went as he pleased. Whether this was due to superior speed or to the dispositions of A or to the bad semaphore service can not be stated. It is questionable whether it is good tactics for a fleet 1 knot inferior in speed to pursue an enemy unless strategical considerations will arrest the latter at some point. Even in that case a direct course to the point in question is more likely to lead to some result. As in the English manœuvres, B was unable to prevent the junction of A1 and A2. B's chance to defeat either A1 or A2 depended upon his rapidity of movement and upon the length of time required under the rules to order A2 to weigh. A2 was saved by the vedettes and semaphores. There is but one point clearly emphasized—the importance of fast cruisers. A slow fleet can not with propriety pursue a faster one, but it can occupy a central position, where it can be found and whence it can be guided to places where its presence will be of value. This can be done only by cruisers and plenty of them.

## THE MEDITERRANEAN.

As in previous manœuvres, the three periods were divided into: First period, July 9 to 13, preparatory, including target practice; second period, July 15 to 21, separate and combined fleet manœuvres; third period, July 25 to 30, strategical and tactical.

The manœuvres were on a larger scale than in previous years. As many vessels of the Active Squadron as could be assembled without detriment to the public interest took part. In addition were the Reserve Squadron, the division under the War College, attached since July 6 to the Active Squadron; the mobile defense of Toulon, Corsica, Algeria, and Tunis. The *réservistes* were called out, it having become the established custom to make their period of instruction coincide with the manœuvres. The men, according to orders, reported at the fifth depot July 6; were fitted out July 7. The Reserve Squadron was mobilized July 8.





The following-named vessels took part in the manœuvres:

Vice-Admiral Alfred Gervais, commander in chief; Vice-Admiral Cavalier de Cuverville, commanding RESERVE FLEET; Rear-Admiral MacGucken de Slane, *Active Fleet*; Rear-Admiral Edouard Pottier, *Active Fleet*; Rear-Admiral Francis Fournier, commanding War College Squadron; Rear-Admiral Turquet de Beauregard, second in command RESERVE FLEET.

| Ship.                           | Class.                           | Fleet. | Date of completion. | Displacement. | Guns, main battery. | Maximum speed. | Completion. |
|---------------------------------|----------------------------------|--------|---------------------|---------------|---------------------|----------------|-------------|
|                                 |                                  |        |                     | <i>Tons.</i>  |                     | <i>Knots.</i>  |             |
| <i>Brennus</i> (flag) .....     | Battleship.....                  | A.     | 1891                | 10, 978       | 13                  | 18. 2          | 666         |
| <i>Magenta</i> (flag) .....     | do .....                         | A.     | 1890                | 10, 600       | 20                  | 16. 2          | 651         |
| AMIRAL DUPERRÉ (flag).....      | do .....                         | R.     | 1879                | 10, 487       | 18                  | 14. 22         | 656         |
| <i>Dévastation</i> (flag) ..... | do .....                         | A.     | 1879                | 9, 639        | 14                  | 15. 17         | 693         |
| <i>Amiral Baudin</i> .....      | do .....                         | A.     | 1883                | 11, 503       | 17                  | 15. 22         | 634         |
| <i>Neptunc</i> (a) .....        | do .....                         | A.     | 1887                | 10, 581       | 20                  | 16. 01         | 651         |
| <i>Marceau</i> .....            | do .....                         | A.     | 1887                | 10, 581       | 21                  | 16. 19         | 643         |
| <i>Courbet</i> .....            | do .....                         | A.     | 1881                | 9, 652        | 14                  | 15. 05         | 681         |
| <i>Redoutable</i> .....         | do .....                         | A.     | 1876                | 8, 858        | 14                  | 14. 66         | 705         |
| FRIEDLAND (flag).....           | do .....                         | R.     | 1873                | 8, 540        | 16                  | 13. 30         | 684         |
| TERRIBLE .....                  | do .....                         | R.     | 1881                | 7, 713        | 6                   | 14. 48         | 405         |
| CAÏMAN .....                    | do .....                         | R.     | 1885                | 7, 230        | 6                   | 14. 34         | 405         |
| CECILLE .....                   | Protected cruiser, first class.  | R.     | 1888                | 5, 766        | 18                  | 19. 44         | 526         |
| <i>Latouche-Tréville</i> .....  | do .....                         | A.     | 1892                | 4, 745        | 8                   | 18. 16         | 370         |
| <i>Chanzy</i> .....             | do .....                         | A.     | 1894                | 4, 745        | 8                   | 17. 82         | 370         |
| <i>Charner</i> (flag).....      | do .....                         | E.     | 1893                | 4, 745        | 8                   | 18. 4          | 370         |
| SFAX .....                      | do .....                         | R.     | 1884                | 4, 488        | 16                  | 16. 71         | 486         |
| <i>Bugeaud</i> (b).....         | Protected cruiser, second class. | A.     | 1893                | 3, 725        | 10                  | 19             | 358         |
| <i>Nichel</i> .....             | do .....                         | E.     | 1893                | 3, 427        | 10                  | 19             | 335         |
| <i>Troude</i> .....             | Protected cruiser, third class   | A.     | 1888                | 1, 877        | 4                   | 20. 91         | 200         |
| LALANDE.....                    | do .....                         | R.     | 1888                | 1, 877        | 4                   | 20. 68         | 200         |
| MILAN .....                     | do .....                         | R.     | 1885                | 1, 546        | 4                   | 18. 41         | 193         |
| <i>Wattignies</i> .....         | do .....                         | A.     | 1891                | 1, 306        | 5                   | 18. 08         | 163         |
| <i>Vantour</i> .....            | do .....                         | A.     | 1889                | 1, 280        | 5                   | 17. 05         | 155         |
| <i>Fancon</i> .....             | do .....                         | A.     | 1887                | 1, 240        | 5                   | 17. 08         | 154         |
| <i>Casabianca</i> .....         | Torpedo vessel.....              | A.     | 1895                | 960           | 1                   | 21             | 138         |
| <i>D'Iberville</i> .....        | do .....                         | A.     | 1893                | 925           | 1                   | 21. 5          | 140         |
| <i>Léger</i> .....              | do .....                         | A.     | 1891                | 444           | 1                   | 18. 8          | 80          |
| <i>Aventurier</i> .....         | Torpedo boat, first-class....    | A.     | 1888                | 150           | <i>Tubes.</i><br>4  | 20. 5          | 35          |
| CHEVALIER.....                  | do .....                         | R.     | 1893                | 123           | 2                   | 27. 22         | 29          |
| <i>Filibustier</i> .....        | do .....                         | A.     | 1893                | 120           | 2                   | 23. 5          | 27          |
| <i>Tourmente</i> .....          | do .....                         | A.     | 1893                | 120           | 2                   | 24. 6          | 27          |
| <i>Kabyle</i> .....             | do .....                         | A.     | 1891                | 106           | 2                   | 21. 44         | 27          |
| <i>Sarrazin</i> .....           | do .....                         | A.     | 1892                | 106           | 2                   | 20. 5          | 27          |
| <i>Orange</i> .....             | do .....                         | A.     | 1891                | 106           | 2                   | 21. 58         | 27          |
| <i>Eclair</i> .....             | do .....                         | A.     | 1891                | 106           | 2                   | 21. 42         | 27          |
| AUDACIEUX .....                 | do .....                         | R.     | 1889                | 103           | 2                   | 20. 5          | 27          |
| Chécliff.....                   | Tug (Algiers).....               |        |                     |               |                     |                |             |
| Azile.....                      | Torpedo boat, first-class....    |        | 1889                | 103           | 2                   | 20. 5          | 27          |
| Forban (c).....                 | do .....                         |        | 1895                | 130           | 2                   | 31. 2          | 32          |

a Replaced *Friedland*.

b Ordered from Cherbourg to join at Toulon.

c During third period only.

## TOULON.

| Ship.        | Class.                         | Date of completion. | Displacement. | Guns, main battery. | Maximum speed. | Completion. |
|--------------|--------------------------------|---------------------|---------------|---------------------|----------------|-------------|
| No. 33.....  | Torpedo boat, third class....  | {1877<br>1882}      | Tons. 32      | Tubes. 2            | Knots.         |             |
| No. 64.....  | .....do.....                   | {1878<br>1885}      | 45            | 2                   | 19             | 16          |
| No. 97.....  | Torpedo boat, second class.... | {1885<br>1892}      | 53            | 2                   | 20             | 16          |
| No. 99.....  | .....do.....                   | {1885<br>1892}      | 53            | 2                   | 20             | 16          |
| No. 104..... | .....do.....                   | {1885<br>1892}      | 53            | 2                   | 20             | 16          |
| No. 125..... | .....do.....                   | {1885<br>1890}      | 53            | 2                   | 20             | 16          |
| No. 134..... | .....do.....                   | {1889<br>1891}      | 51            | 2                   | 21             | 16          |
| No. 143..... | .....do.....                   | {1889<br>1891}      | 51            | 2                   | 21             | 16          |
| No. 177..... | Torpedo boat, first class....  | 1893                | 79.55         | 2                   | 24             | 22          |
| No. 185..... | .....do.....                   | 1894                | 78.87         | 2                   | 24             | 22          |
| No. 190..... | .....do.....                   | 1894                | 78.87         | 2                   | 24             | 22          |
| No. 191..... | .....do.....                   | 1894                | 78.87         | 2                   | 24             | 22          |

## AJACCIO.

|              |                                |                |    |   |    |    |
|--------------|--------------------------------|----------------|----|---|----|----|
| No. 140..... | Torpedo boat, second class.... | {1890<br>1891} | 54 | 2 | 20 | 16 |
| No. 164..... | Torpedo boat, first class....  | 1892           | 79 | 2 | 21 | 22 |
| No. 169..... | .....do.....                   | 1892           | 79 | 2 | 21 | 22 |

## FIRST PERIOD.

July 9, the *Active Fleet* weighed at 7 a. m., and the RESERVE SQUADRON at 8 a. m. The following organization was adopted by the *Active Fleet*. Armored squadron, first column, *Brennus* (Vice-Admiral Gervais), *Marceau*, *Amiral Baudin*, *Devastation* (Rear-Admiral Pottier), *Courbet*, *Magenta* (Rear-Admiral de Slane), *Redoutable*. Light squadron, second column, *Amiral Charner* (Rear-Admiral Fournier), *Latouche-Treville*, *Chanzy*, *Suchet*, *Troude*, *Vantour*, *Fancon*, and later, *Bugeand*. To the left of the battleships were the *Wattignies D'Iberville* and *Casabianca*. The fleet anchored off Hyères at 10.30 a. m., while the RESERVE FLEET shaped course for Corsica.

*Active Fleet*.—In obedience to signal the submarine miner force was landed for drill. After dinner the fleet got under way and exercised at general quarters and other drills, including battle tactics. The vessels anchored again before night. The *Fancon*, *Troude*, and *Vantour* were detached to make a night attack on the western shore in the neighborhood of Toulon. The attack was met by the mobile defenses

torpedo boats. The attacking force returned during the night. Exercise at night signaling took place.

July 10, the fleet weighed anchor at 7 a. m., the cruisers first, under orders to carry out previously indicated attack upon the Hyères Islands. The fleet from the southward of the Grand Pass without previous reconnaissance operated as follows: Rear-Admiral Pottier with the *Devastation*, *Courbet*, *Redoutable*, and *Chanzy* attacked the Porquerolles-Giens group; Rear-Admiral de Slane with the *Magenta*, *Marceau*, and *Baudin*, the Léoube-Brégançon line; Rear-Admiral Fournier, with the War College Squadron, of which the *Suchet* was rated as an armored cruiser, attacked the Port Cros group; Vice-Admiral Gervais with the *Brennus* went where he considered his presence necessary. The *Wattignies* was posted 4 miles south of Porquerolles semaphore, the *Troude*, south of Camarat, east of Titan; the *Fancon*, 4 miles south of Gabinier and the *Vantour* half way between the last two. These vessels were to signal to the admiral the movements of a supposititious enemy. Each attacking force simulated bombardment. At 2 p. m., the *Troude* signaled the enemy in sight to the southward, whereupon the commander in chief ordered concentration, which gradually was executed. At 4 p. m. the positions were as follows: Rear-Admiral Fournier's division coming from the north of Port Cros, heading SW.; Rear-Admiral Pottier's division, after rounding Porquerolles to the northward, heading SE.; Rear-Admiral de Slane's division, without the *Baudin*, coming from the southward of Port Clos, heading WSW. The *Baudin* weighed from Hyères and joined about 4.30. The fleet then formed two columns, the light squadron to port and anchored. The *D'Iberville*, *Wattignies* and *Casabianca* moored to the west of the *Brennus*, the *Troude*, *Vantour*, and *Fancon* to the east, at the other end of the fleet.

At 9 p. m. a torpedo boat attack began. The night was calm and clear with bright starlight, conditions very unfavorable for the attack. Five attempts were made, coming from various directions. But one torpedo struck, one discharged by the *Kabyle* at the *Brennus*; all other vessels were discovered in ample time and adjudged destroyed. It is important to note that several torpedo boats were discovered by the noise of their machinery. July 11, the fleet weighed at 7 a. m. and spent the forenoon at torpedo drill. First, dummy torpedoes were discharged against vessels, the *Magenta*, *Redoutable*, and *Courbet* forming the target; second, a torpedo drill by the torpedo vessels and torpedo boats, resembling as nearly as possible conditions of actual battle. The first division of armored ships, accompanied by the torpedo flotilla, advanced in line at full speed upon the second division, also in line. An artillery duel took place during approach, when suddenly the first division changed course eight points, unmasking the torpedo flotilla, which attacked at full speed, supported by the fire of their armored ships. Many torpedoes struck, but details are wanting as to the length of time the boats were exposed to fire.

The fleet returned to Toulon, where the vessels moored about 4 p. m. The following was the composition of the RESERVE FLEET:

Vice-Admiral Cavelier de Cuverville, commander in chief.

Battleships: First division—AMIRAL DUPERRÉ (flag), CAÏMAN. Second division—FRIEDLAND (flag of Rear-Admiral de Beauregard), TERRIBLE.

Cruisers: First division—CECILLE, LALANDE, LÉGER. Second division—SFAX, MILAN.

Torpedo boats: First group—AUDACIEUX, AVENTURIER. Second group—ORAGE, CHEVALIER.

RESERVE FLEET.—The fleet, under the command of Vice-Admiral Cavelier de Cuverville, bombarded Ajaccio, defended by the batteries and mobile defenses. The battery and semaphore forces were doubled. While steaming toward Ajaccio during the night of July 9 and 10, the torpedo boat AUDACIEUX was sunk by collision with the CHEVALIER: (See Casualties p. 123.) The fleet was steaming without lights, but the AUDACIEUX carried hers. The CHEVALIER was unable to reduce speed to that of the fleet and had permission to circle about so as not to leave the fleet. She carried no lights, as she should have done, not being included in the squadron formation. To this fact may be attributed the accident. No lives were lost, as the AUDACIEUX was kept afloat about three hours. The exercises of the RESERVE FLEET were similar, generally, to those already described. The fleet anchored each night at Ajaccio.

July 14, the national fête day, was passed at anchor by the two fleets in Toulon and Ajaccio, respectively.

## SECOND PERIOD.

*Active Fleet.*—July 15 the fleet in two divisions weighed early in the morning. The first division was composed of the Active Squadron under Vice-Admiral Gervais. The second division was made up of the War College division, with the *Bugeaud* added, under Rear-Admiral Fournier. The first division anchored at Hyères Roads, after spending the greater part of the day in torpedo exercises very similar to those previously described. The force attacked was composed of the *Magenta*, *Redoutable*, *Devastation*, and *Courbet*. Both squadrons advanced in column of vessels and passed to starboard of each other. When the heads of columns came abeam the torpedo boats, previously massed to starboard of the friendly battleships, quickened speed and, turning to starboard, circled around to pass close astern of the *Amiral Baudin*, the rear vessel of their own column, attacked in succession from the head of column. Nearly all the torpedoes struck. Later the same day the torpedo boats of the Toulon mobile defense attacked the armored ships, and again that night after the fleet anchored in Port Pothuau. July 16 was spent in somewhat similar exercises by the armored ships, and also in efforts to board. A platform was towed at a speed of 10 knots, and

the vessels approached it near enough to throw grappling irons. The *Casabianca* and *D'Iberville*, at 13 knots, attempted to force a blockade and escape, while eight torpedo boats of the Toulon force, speed 15 knots, succeeded in preventing their escape. At 9 p. m. the light division rejoined.

**RESERVE FLEET.**—July 15–17 the fleet was occupied with various exercises, including torpedo boat attacks. The *LALANDE* was the only vessel struck.

*Combined fleets.*—The following theme indicates the operations completing the second period.

A squadron *A* anchored at Salines-d'Hyères learns that a stronger squadron *E* is cruising in that part of the Mediterranean included between Corsica, the Balearic Islands, and Provence. By means of semaphores *A* succeeds in calling a friendly squadron *B*, also weaker than *E*, to his assistance. *B* is anchored at Ajaccio. *A* and *B* united are superior to *E*. *A* and *B* are to effect junction. *A* is to try not to lose touch with *E* and also to open communication with *B* by means of his cruisers. The following was the composition of the squadrons:

*A* (Hyères): *Brennus* (Vice-Admiral Gervais), *Marceau*, *Amiral Baudin*, battleships; *Charner*, *Latouche-Tréville*, *Chanzy*, *Bugeaud*, *Troude*, *Wattignies*, cruisers; *D'Iberville*, *Casabianca*, torpedo vessels; *Filibustier*, *Tourmente*, torpedo boats.

*B* (Ajaccio): *Amiral Duperré* (Vice-Admiral de Cuverville), *Caïman*, *Terrible*, battleships; *Cécille*, *Sfax*, *Lalande*, cruisers; *Lger*, torpedo vessel; *Orage*, torpedo boat; absent, *Friedland*, battleship, machinery out of order; *Milan*, cruiser, convoying the torpedo boat *Chevalier* to Toulon, and *Audacieux* lost.

*E*: *MAGENTA* (Rear-Admiral de Slane), *REDOUTABLE*, *DÉVASTATION* (Rear-Admiral Pottier), *COURBET*, battleships; *FANCON*, *VANTOUR*, cruisers; *AVENTURIER*, *ECLAIR*, *KABYLE*, *SARRAZIN*, torpedo boats.

**SQUADRON E** weighed from Salines-d'Hyères July 17 at 10.15 a. m., and disappeared to the southward. About noon the Porguerolles semaphore signaled the enemy in sight, whereupon the cruisers of *A* were sent to sea, separating in the offing into two divisions, all the larger and stronger vessels into one, destined to preserve contact with the enemy and capable of driving in the *E* cruisers; the other composed of the lighter and faster vessels, to obtain touch with *Squadron B*; the *Casabianca* was attached as dispatch vessel to the first division and the *Wattignies* remained with the armored force. At 1.20 the *Brennus*, *Marceau*, *Baudin*, and *Wattignies* weighed, with the *D'Iberville*, *Filibustier*, and *Tourmente* in company. *Squadron B* weighed from Ajaccio about the same time. July 18 at daylight the three squadrons were in sight. *A* and *B* united and attacked *E*, while the united cruisers chased the enemy's cruisers. While urging the fires the *Filibustier's* water gauges blew out, mortally wounding one man and severely wounding two others. After an action the squadrons separated again to carry

out a new program. *Squadron A* undertook the defense of the coast of Provence. *E*, operating within the sector previously mentioned, discovered *A* and blockaded him. *A* was enabled to inform *B* of the situation, and the blockade was broken by the combined operations of the two squadrons. *A*'s cruisers were especially active. July 20 operations ceased and the vessels separated to take in stores, part going to Algiers and the rest, twenty vessels, to Philippeville. The port was found to be too small an anchorage even for this comparatively small force; as a consequence, part of the fleet went to Bona, others waited at Stora until room was made for them in the harbor of Philippeville. July 21 the *Chécliff* and four torpedo boats of the Bona mobile defense reached Philippeville and were placed under the orders of Vice-Admiral Gervais.

### THIRD PERIOD.

For the third period the fleet was organized as follows:

*Fleet A*.—First division: *Brennus* (Vice-Admiral Gervais), *Marceau*, *Baudin*, *Charner* (Rear-Admiral Fournier), *Bugeaud*, *Troude*, *Wattizne*, *D'Iberville*, *Filibustier*, *Eclair*, *Agile*. Second division: *Dévastation* (Rear-Admiral Pottier), *Courbet*, *Redoutable*, *Latouche-Tréville*, *Suchet*, *Faucon*, *Casabianca*, *Sarrazin*, *Tourmente*, *Aventurier*.

*FLEET B*.—First division: AMIRAL DUPERRÉ (Vice-Admiral de Caverville), TERRIBLE, CAÏMAN, CÉCILLE, SFAX, MILAN, LEGER, ORAGE. Second division: MAGENTA (Rear-Admiral de Slane), NEPTUNE, CHANZY, LALANDE, VAUTOUR, KABYLE.

*Fleet A* united at Bougie, from which place it weighed July 25 to carry out the program.

*FLEET B* was at Algiers, from which port the second division got under way first.

### THEME.

*Fleet A* is a French fleet anchored in Bougie. The French coast is defended by the mobile defense vessels of Toulon and Corsica while news is sent *A* of an attack. *FLEET B* is hostile, with headquarters at Algiers. The west coast to Morocco is enemy's territory; the rest of the coast is French, as is also the coast of Provence. *B* is to attack and bombard the French coast, to destroy commercial centers, and to remove semaphores. *A* is to find and attack *B*, to destroy him if possible. The mobile defense is to patrol the coast, but not to put to sea. Finally, *B* is to bombard the eastern coast of Algiers. The fleets unite and carry out a combined attack on the coasts of Corsica and Provence.

### EXECUTION.

When hostilities were declared the fast battleships MAGENTA and NEPTUNE, with the cruisers SFAX and VANTOUR, under the command of Rear-Admiral de Slane, started for the coast of Provence, the main body of *B* following toward the Balearic Islands, the idea being to

draw *A* over to the French Coast. The effort was partially successful, as the fast *A* cruisers *Amiral Charner*, *Latouche-Tréville*, and *Suchet*, under Rear-Admiral Fournier, followed in the endeavor to ascertain the position and movements of the enemy. An attack was made on Toulon, but the enemy was driven off by the mobile defense. The Garoupe semaphore was seized, however, by the *SFAX*, while the *MAGENTA* bombarded Fort Mont-Boron, near Nice, and repulsed attacks by torpedo boats Nos. 27, 64, 104, 134, and 177, defending the Villefranche sector. During one of the attacks a force was landed to simulate the destruction of signal stations. The armored vessels protected the landing and the mobile defense was compelled to scatter. The *Suchet* narrowly escaped capture and the light division, unable to interfere with the enemy's movements, rejoined the *A Fleet*. In the meantime Vice-Admiral Gervais sent the *Redoutable* and *Bugeaud* to destroy the coaling station at Dellys. It was assumed the port was destroyed after about two hours' fighting, the *Redoutable* losing two-thirds of her fighting value. *B* suffered a reduction of fighting value in the attacks along the French Coast. *B* was further reduced by slight injuries to the *AZILE*, *KABYLE*, and *ORAGE*, torpedo boats that were conveyed to Algiers by the *LEGER*.

*A Fleet* seems to have remained on the Algerian Coast during the rest of the operations. The main force of the *B FLEET* cruised for five days in the neighborhood of the Balearic Islands. During the first day the *A* cruisers were seen, but no meeting took place between the fleets. Coal was running short in the *B FLEET*, and as the only coaling station belonging to the fleet was adjudged destroyed, *B* was considered defeated in spite of the successful raid along the coast.

July 30 *B FLEET* united and made an attack in the neighborhood of Gien. At 11 a. m. the vessels hauled off and anchored at Salins-d'Hyères during the afternoon. The *Amiral Charner* took part in one of the attacks and succeeded in breaking the line of defense and entering Toulon Harbor.

The same day the *Active Squadron* concentrated at Philippeville and weighed that evening for Toulon. The *Wattignies* and *Fancov* remained with the torpedo boats to obtain a night's rest for the crews, and got under way the following morning.

The *Bugeaud*, having aboard the *réservistes*, was sent ahead and reached Toulon the morning of August 1. *B FLEET* arrived next from Salins-d'Hyères and *A* the same afternoon. After a congratulatory order from Vice-Admiral Gervais the manœuvres terminated.

#### CASUALTIES.

July 10: *AUDACIEUX*, torpedo boat, sunk by collision with the *CHEVALIER*, torpedo boat. While the *RESERVE FLEET* was steaming toward Ajaccio, orders were given to mask all lights. The *AUDACIEUX*, carrying her running lights, was detailed by the admiral to inspect the fleet during

the night, and to report upon the visibility of the vessels, and presumably of any lights. The CHEVALIER was unable to keep station at the slow speed of the fleet, and the commanding officer had obtained permission to increase speed and to fall out of the fleet formation. In order not to leave the fleet the CHEVALIER circled about, but by some oversight failed to carry her running lights. While making the second round of the fleet, and ignorant of the status of the CHEVALIER, the commanding officer of the AUDACIEUX suddenly made out a vessel close aboard crossing his bows. He reversed at full speed, but the distance was too small, and the bows of the AUDACIEUX struck the CHEVALIER near the bow. The latter was so slightly damaged, although the vessel struck, that she was kept afloat and reached Ajaccio unaided, convoyed by the MILAN. Later, she was sent to Toulon for repairs. Every precaution was taken to save the AUDACIEUX; bilge pumps started, collision mat put over the bows, etc., but to no purpose. The forward parts had been crushed and the bulkheads forced in, more than half the boat being open to the sea. The SFAX took her in tow by the stern, hoping to reach Ajaccio, but at 5.15 it became necessary to abandon her; the tow line was cut and the boat sank. No lives were lost.

July 17: CHEVALIER, torpedo boat, conveyed by MILAN, cruiser, arrived at Toulon. MILAN, cruiser, injury to boiler on passage; repaired at Toulon. A detonator exploded while he was handling it, injuring one eye and one hand of Ensign Doue, of the MILAN. He was sent to the Toulon hospital, where he recovered.

July 18: FILIBUSTIER, torpedo boat, blew out water guage, mortally wounding one man and seriously injuring two others. The men were transferred to the BRENNNS, where the first man died; the others were landed at the Philippeville hospital.

July 19: FRIEDLAND, battleship, injury to starting engine. This was the third time since the beginning of the manœuvres that defects developed aboard this vessel. She was sent to Toulon and replaced by the *Neptune*.

July 21: *Magenta*, battleship, when mooring in the harbor of Algiers the mooring chain broke, and the high wind blowing at the time forced her stern upon Nameless Rock. She was gotten off without material injury, after lightening part of her coal.

July 25 an officer of the *Amiral Baudin*, battleship, committed suicide.

July 27: AZILE, KABYLE, and ORAGE, slight injuries to machinery; were sent to Algiers; convoyed by torpedo vessel *Leger*; all rejoined at Salins-d'Hyères July 30.

#### COMMENTS.

No complaints seem to have been made about the *réservistes*. As far as known they were punctual, and performed the duties required of them satisfactorily. The movements of the various squadrons preparing for the manœuvres called forth no unfavorable criticism.

Restricted as is the area in which manœuvres can be held, a sameness and a certain amount of repetition can not be avoided. The first period in French manœuvres differs from the English preliminary work, as the "shaking down" required is less. Ships are not newly commissioned, and the nature of the work required of them is more exterior than interior.

In the Active Fleet the feature of the drill undoubtedly was the fleet torpedo-boat attack. This resembled real war more closely than any exercise of the kind attempted by French vessels. Many torpedoes were said to have struck. It is to be regretted so many details are wanting, particularly the amount of protection afforded the boats by their armored vessels; the distance between squadrons when the attacking force changed course; whether the boats attacked in succession as the squadron uncovered them, or after the rear ship had cleared the enemy's front; whether they did or did not steam through the intervals between ships, just before or just after the change of course; and finally, how long the boats were considered to be under fire. The only criticism is as to the advisability of line attack; but this formation presumably was taken to develop the torpedo-boat attack and not through tactical considerations. The coast attacks and other exercises call for no especial remarks.

During the second period an attack in column took place. Here the boats were better protected, but during the approach would have been visible to the enemy, who naturally would not have maintained a parallel course unless himself accompanied by a corresponding flotilla. Here again details are wanting, and the same questions as above can be asked. One can draw the conclusion, however, from these exercises that the French torpedoes are well regulated and particularly well handled. Great and lasting improvement has been noticed in these important particulars, rendering the torpedo more certain in its action and correspondingly more formidable. The closing exercises of the second period demonstrated the importance of powerful cruisers. The *A* cruisers rendered those of the *B* squadron practically useless. They were compelled to remain near the battleships, and *A* could not be shaken off. Speed and offensive power must both exist in the cruiser force or it is almost valueless.

In view of the meager information obtained regarding the third period, an intelligent criticism is almost impossible. If the theme is given correctly the action of the main forces can not be explained. If *B* was going to attack either Provence or the French Coast (so called) of Algeria, what was gained by a five-days' disappearance among the Balaeric Islands, burning coal and hurting no one? If *A* was to find *B* and defeat him, or if *A* was to defend Provence, why did not he go there?

What strategical considerations governed so able a leader as Vice-Admiral Gervais as to permit the destruction of much valuable property, railroad communications, and military works? Why was the cruiser

force sent out by A so weak as to be unable to cope with the raiding force of B? It does not appear that a successful search was made for the main B force, and the only explanation given is that the cruisers could not cover the manœuvre field. If Dellys was so weak as to fall before the attack of one battleship and cruiser, the B force risked itself by abandoning its only coal depot. The ulterior object of A was of course the destruction of the enemy's fleet, and this virtually was accomplished when B lost Dellys; but a fleet so situated would sell itself dearly, or at least attempt to retake its base. In real warfare a fleet without a coal depot is not thereby reduced to helplessness, for colliers may coal it, and coal can be captured both ashore and afloat. No effort of this kind seems to have been attempted by B. Vessels like the *Suchet*, *Troude*, and *LALANDE* showed efficiency and that they are of a good type; but the larger vessels of the *Chanzy* type showed want of coal capacity and want of speed for vessels of such size. The *Chanzy*, after three days' steaming, at a speed near 16 knots, ceases to be a rapid cruiser. She is rated at near 18 knots. The armored vessels and the seagoing torpedo boats showed themselves excellent and seaworthy.

Everything points to a high state of efficiency in the Mediterranean fleet both as to material and personnel. The small number of casualties and want of hostile criticism in a usually hostile press speak volumes in this regard. Much also may be attributed to a thoroughly practical system of drills and exercises, devised and carried out under the direction of one of the most capable officers afloat.

#### ADDITIONAL.

Experiments were conducted during August to test the practicability of coaling at sea by means of the *Temperley* transporter. The *Lutécia*, of Marseilles, was loaded with 250 tons of coal in sacks and 250 tons in bulk. The result of these experiments is not known. Coaling at sea is one of the most important problems awaiting solution. When, within reasonable limits, this operation can be carried on without regard to wind and weather, the efficiency of a fleet will be enormously increased.

During one of the torpedo-boat exercises the *Sarrazin* attempted to torpedo the *Neptune* while at anchor in Hyères Roads. The *Sarrazin* was discovered in time and kept under the rays of the electric light. Those directing the movements of the *Sarrazin* were dazzled and lost all appreciation of distance, so that the torpedo boat ran directly into the *Neptune*. Fortunately but little damage was done. This is but one of many instances showing the blinding power of search lights and its effect at critical moments upon the efficiency of torpedo boats.

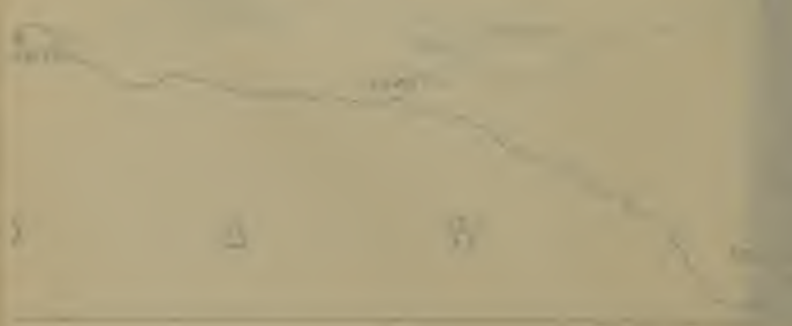
August 17, during rapid-fire target practice, at a towed target, Lieutenant Le Tiec of the cruiser *Vautour* detected Gun Captain Delahaye firing not at the target, but at the bridge of the battleship *Brennus*. The man claimed in his defense that for the moment he forgot he was using ball cartridge and that unthinkingly he had aimed as in



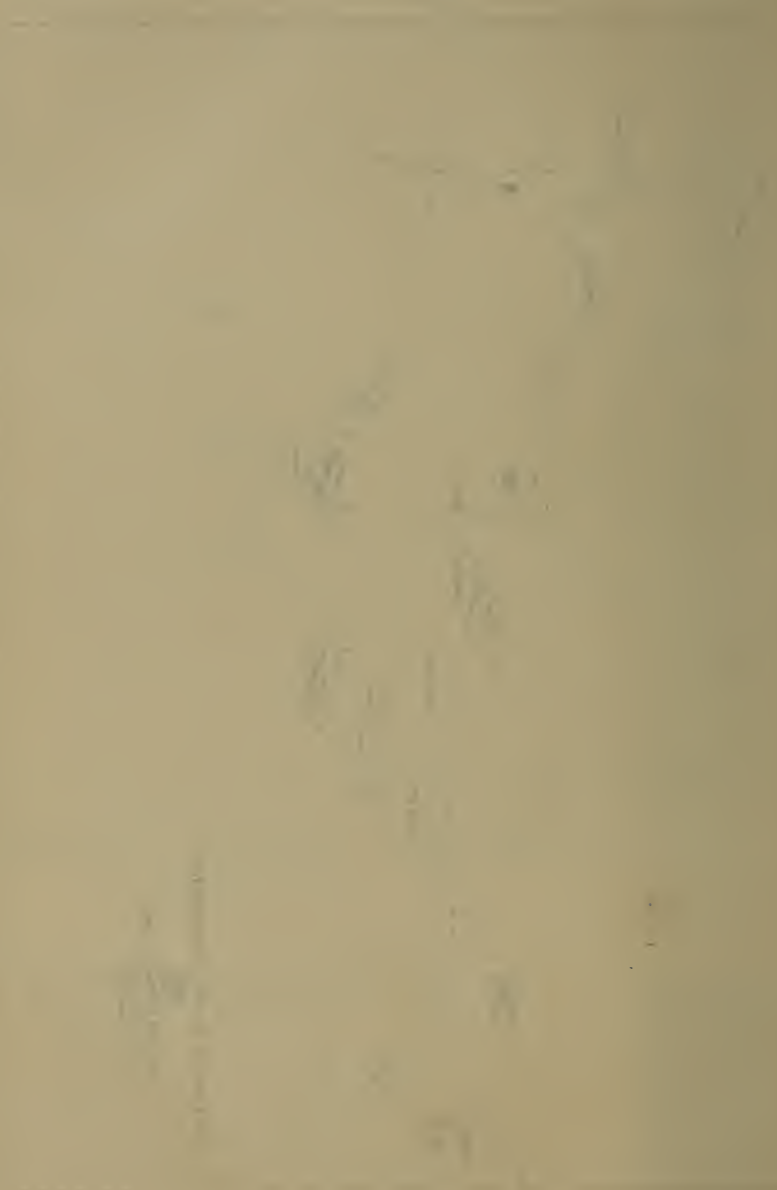


— FISHING GROUNDS —  
— 1891 —

WATERWAY







the usual daily exercises. He fired before being stopped about twelve  
3, of which at 700 meters (765 yards) five or six struck. One man was wounded. No criminal intent existed. Great care was ordered exercised in consequence during target firing. The man was sentenced to fifteen days' confinement and deprived of his position of gun captain.

September 10 experiments were made in the Gulf of Jouan with a countermine called the "submarine sentinel." Towed by the *Sarrazin*, the apparatus succeeded in exploding two automatic torpedoes previously anchored. A favorable report was made.

October 14 Vice-Admiral Gervais was relieved of the command of the *Active Fleet* by Vice-Admiral Cuverville and Vice-Admiral Humann took command of the RESERVE FLEET.

Throughout the winter exercises took place at frequent intervals. In December the RESERVE FLEET began night movements without lights, an exercise largely developed under the command of Rear-Admiral Gervais. Entering Hyères Roads without lights, by the little pass, one of the many torpedo-boat attacks was delivered. Getting under way and anchoring at night without lights frequently was practiced.

February 6 the RESERVE FLEET began the execution of a strategical problem set by the commander in chief. The fleet got under way just after nightfall, according to custom, whenever possible. The following is the theme set:

War has been declared most unexpectedly. The *Active Fleet* has weighed immediately for the east, and the RESERVE is to cover and defend the littoral between Toulon and Marseilles. A large hostile force, cruising to the southward of the Balearic Islands, sends the cruisers and torpedo vessels to raid the Provence Coast. The RESERVE must find the cruisers, at the same time guarding against the torpedo vessels that are to be fought and captured. Junction later is to be made with the *Active Fleet*, which has stationed a few videttes, as a sort of rear guard, on the Corsican Coast.

The three principal points brought out by this theme in its practical application were as follows:

(1) Contact with a hostile force represented by mail boats known to have left Algeria about the proper time.

(2) Guarding against torpedo-boat attack, and attempt to capture the boats. The mobile defense of Toulon represented the hostile flotilla, and was kept in ignorance of the whereabouts of the fleet. The flotilla was allowed sixty hours to find the fleet between Toulon and Marseilles, keeping north of the parallel of Porquerolles.

(3) Concentration, then fan-shaped deployment, limited only by ability to read long-distance signals, trying to find the rear guard of the *Active Fleet*. The battle squadron, under Vice-Admiral Humann, consisted of the AMIRAL DUPERRÉ, TERRIBLE, and CAÏMAN, with the torpedo boats ORAGE and AVENTURIER. The light squadron, under Rear-Admiral Godin, consisted of the cruisers CHANZY, LATOUCHE-TRÉVILLE, and MILAN.

Work of this kind has demonstrated the usefulness of the RESERVE FLEET, and has stilled the cry lately raised to abolish it. In view of the present political complications in the East, the theme selected was eminently practical. It is to be regretted so little is known of the details of execution.

## THE GERMAN MANŒUVRES.

The period covered by the German manœuvres and tactical exercises extended from August 9 to September 14. The vessels assembled at Wilhelmshaven. Admiral Knorr, in command of the naval department, hoisted his flag aboard the *Blücher* as commander in chief; Rear-Admiral von Diederichs was chief of staff, and assisted by a captain and two commanders.

The following program was issued concerning the manœuvres: August 10 and 11, inspection by the commander in chief; in the evening to weigh, and to manœuvre for two days between Helgoland and the mouth of the Elbe. August 14 the entire fleet to make the passage through the Kaiser Wilhelm Canal to Kiel. To manœuvre in the Baltic until September 2, and then to return by the Big and Little Belts to the North Sea, where the manœuvres will be completed in presence of the Emperor, in the area comprised between Helgoland and the mouths of the Elbe and Jahde. September 12 return to Wilhelmshaven and inspection.

The following-named vessels took part in the manœuvres:

*Admiral Knorr, commander in chief.*

| Ship.                                     | Class.                          | Station.      | Date of completion. | Displacement. | Guns, main battery. | Maximum speed. | Complement. |
|-------------------------------------------|---------------------------------|---------------|---------------------|---------------|---------------------|----------------|-------------|
| <i>Blücher</i> (flag).....                | Training ship.....              | Training..... | 1877                | Tons. 2,856   | 2 boat              | Knots. 14      | 400         |
| <i>First fleet.</i>                       |                                 |               |                     |               |                     |                |             |
| First division, Vice-Admiral Koster.      |                                 |               |                     |               |                     |                |             |
| <i>Kurfürst Friedrich Wilhelm</i> (flag). | Battleship, first class. ....   | Active.....   | 1891                | 10,033        | 12                  | 16             | 556         |
| <i>Brandenburg</i> .....                  | .....do .....                   | .....do ..... | 1891                | 10,033        | 12                  | 16             | 556         |
| <i>Weissenburg</i> .....                  | .....do .....                   | .....do ..... | 1891                | 10,033        | 12                  | 16             | 556         |
| <i>Wörth</i> .....                        | .....do .....                   | .....do ..... | 1892                | 10,033        | 12                  | 16             | 556         |
| <i>Jagd</i> .....                         | Protected cruiser, third class. | .....do ..... | 1888                | 1,250         | 4                   | 19             | 140         |
| Second division, Rear-Admiral Arnim.      |                                 |               |                     |               |                     |                |             |
| <i>König Wilhelm</i> (flag)...            | Battleship, second class.....   | .....do ..... | 1868<br>1896        | 9,757         | 29                  | 19             | 730         |
| <i>Sachsen</i> .....                      | .....do .....                   | .....do ..... | 1877<br>1896        |               |                     |                |             |
| <i>Württemberg</i> .....                  | .....do .....                   | .....do ..... | 1878<br>1896        | 7,400         | 6                   | 14             | 377         |
| <i>Hagen</i> .....                        | Coast defense, battleship.....  | .....do ..... | 1893                |               |                     |                |             |
| <i>Wacht</i> .....                        | Protected cruiser, third class. | .....do ..... | 1887                | 1,240         | 4                   | 19.6           | 140         |

*Admiral Knorr, commander in chief—Continued.*

| Ship.                                    | Class.                         | Station.        | Date of completion. | Displacement. | Guns, main battery. | Maximum speed. | Completion. |
|------------------------------------------|--------------------------------|-----------------|---------------------|---------------|---------------------|----------------|-------------|
| <i>Torpedo flotilla.</i>                 |                                |                 |                     |               |                     |                |             |
| Commander Poschmarm.                     |                                |                 |                     | <i>Tons.</i>  |                     | <i>Knots.</i>  |             |
| <i>Blitz</i> .....                       | Gun vessel.....                | Active.....     | 1882                | 1,382         | 6                   | 16             | 134         |
| <i>D 7</i> .....                         | Torpedo vessel divisional..... | do .....        | 1890                | 350           | 3                   | 26             | 70          |
| <i>D 9</i> .....                         | do .....                       | do .....        | 1894                | 380           | 3                   | 26             | 70          |
| Twelve torpedo boats                     |                                | do .....        |                     |               |                     |                |             |
| <i>Second Fleet.</i>                     |                                |                 |                     |               |                     |                |             |
| Third division. Rear-Admiral Barandon.   |                                |                 |                     |               |                     |                |             |
| <i>Stein</i> (flag).....                 | Training ship.....             | Instructional.. | 1879                | 2,856         | 14                  | 13             | 446         |
| <i>Stosch</i> .....                      | do .....                       | do .....        | 1877                | 2,856         | 14                  | 13             | 446         |
| <i>Moltke</i> .....                      | do .....                       | do .....        | 1877                | 2,856         | 14                  | 13             | 461         |
| <i>Gneisenau</i> .....                   | do .....                       | do .....        | 1879                | 2,856         | 14                  | 13             | 461         |
| <i>Grille</i> .....                      | Surveying vessel .....         | Survey .....    | 1857                | 350           | 6-1 pr E. C.        | 13             | 74          |
| Fourth division, Captain Koch.           |                                |                 |                     |               |                     |                |             |
| <i>Hildebrand</i> .....                  | Coast-defense battleship..     | Coast defense.  | 1892                | 3,495         | 11                  | 15.5           | 268         |
| <i>Siegfried</i> .....                   | do .....                       | do .....        | 1889                | 3,495         | 9                   | 15.5           | 266         |
| <i>Frithjof</i> .....                    | do .....                       | do .....        | 1891                | 3,495         | 11                  | 15.5           | 266         |
| <i>Beowulf</i> .....                     | do .....                       | do .....        | 1890                | 3,495         | 11                  | 15.5           | 266         |
| <i>Torpedo Flotilla, Captain Colomb.</i> |                                |                 |                     |               |                     |                |             |
| <i>D 3</i> .....                         | Torpedo boats, divisional.     | Coast defense.  | 1888                | 300           | <i>Tubes.</i><br>3  | 21             | 50          |
| <i>D 5</i> .....                         | do .....                       | do .....        | 1888                | 300           | 3                   | 21             | 50          |
| <i>D 6</i> .....                         | do .....                       | do .....        | {1888}<br>{1889}    | 320           | 3                   | 23             | 50          |
| Twelve torpedo boats.                    |                                | do .....        |                     |               |                     |                |             |
| <i>Pelican</i> .....                     | Transport and storeship..      | Special.....    | 1890                | 2,000         | 8                   | 16             | 182         |

The manœuvres present no special features; interest centers chiefly in the passage of the Kaiser Wilhelm Canal and the strategical importance resulting therefrom.

October 1, 1887, the corner stone of the canal was laid by Kaiser Wilhelm I. The canal was declared open officially June 1, 1895. No difference of level was to be expected in the canal, but winds and the tides in the river Elbe necessitated a lock near Brunsbüttel, at the Elbe entrance, and another near Holtenu, at the Baltic entrance. These locks are each 492 feet long, 82 feet wide, and 31.3 feet deep. The canal begins at a distance of about 2.5 kilometers (1.5 miles) to the eastward of Brunsbüttel and runs in a general northeasterly direction, and terminates about 5 kilometers (3.1 miles) above Kiel. The length of the canal is 61.3 miles; width, 65.6 meters (215.2 feet); for a width of 20.94 meters (68.70 feet) the depth is 9.30 meters (30.51 feet); thence to a width of 40 meters (131.2 feet) the depth decreases gradually to 6.30 meters (20.67 feet). The Kiel mouth is about 28.5 miles north of the Elbe mouth. At Brunsbüttel is an outer harbor 1,512 feet long by

328 feet wide. Kiel Harbor is about 6 miles in length and  $1\frac{1}{4}$  miles in width, with a depth of water from 30 to 50 feet.

The canal is crossed by two bridges, 137 feet above the water, and six drawbridges. There are six turnouts and sixteen ferries. The cost of the completed canal was a little more than \$39,000,000.

The passage of the canal took place August 13 and 14, beginning at 1 p. m. August 13. The times through the locks were as follows: One torpedo boat was locked through in seven minutes, fourteen boats (two divisional and twelve torpedo boats) in ten minutes, two battleships in fifteen minutes. At night the times were slightly increased, a battleship taking twenty-three minutes, though average times were between twelve and thirteen minutes. Both sides of the locks were used simultaneously and for passage in the same direction; thus each lock took seven torpedo boats or one battleship. The passage through the canal occupied times varying as follows: Torpedo boats, six and one-half hours; cruisers, seven hours; divisional torpedo boats, seven and one-half hours; battleships of the *Hazen* class, eight hours; the third division vessels, nine hours; the *König Wilhelm*, *Sachsen*, and *Württemberg*, twelve hours, and the four largest battleships, thirteen hours. For the larger vessels a delay of four hours took place while in the canal. This would reduce the actual time of passage to eight and nine hours, making the rate of speed a little less than 7 miles an hour or about 6 knots. In the latter part of 1895 the four battleships of the first division made the passage through the canal, about 1,000 yards apart, in about ten and one-half hours, at an average speed of 5 knots, or nearly 6 miles an hour. In all, thirty-six men-of-war passed through, comprising all the fleet except fifteen torpedo boats. Although slight interruptions were experienced, nevertheless merchant ships passed through the canal both ways while the fleet was in transit, and the average daily tonnage was but little affected.

It is manifest that the strategic importance of this canal to Germany is very great. The arrival of reinforcements at any point during war is often a matter of minutes, and the command of the sea can be determined as well by interior lines as can any operations on shore.

It remains to be determined, however, whether the western approaches are available at all times and under all conditions of wind and sea.

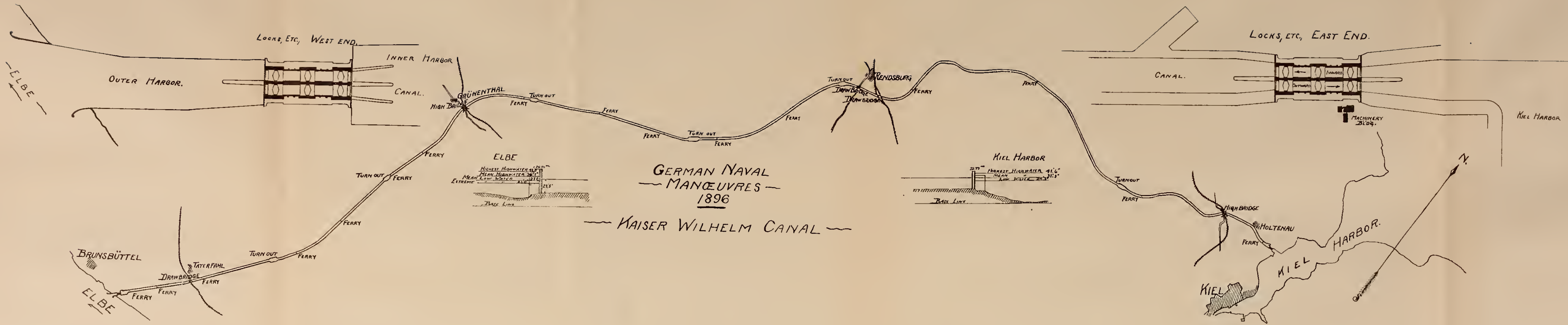
The draught of water given for the *König Wilhelm* is 8.10 meters (26.57 feet); that of the *Brandenburg* is 8 meters (26.24 feet); practically the same, though the mean draught of the former is given as 7.8 meters (25.6 feet) and of the latter as 7.44 meters (24.4 feet). Between Cuxhaven and Brunsbüttel, at the confluence of the Oste, the depth of the Elbe is given as from 7 to 7.5 meters (22.9 to 24.6 feet). With an easterly wind and extreme low water the larger battleships might be compelled to wait from three to four hours before entering the canal or leaving the Elbe—a time sufficient to neutralize the advantage gained while



1870

1871

1872





passing the canal. In the meantime, until the upper reaches of the Elbe are rectified in accordance with some definite scheme not yet formulated, the lower channel must remain as it is.

From Helgoland to the mouth of the canal at Holfenau the distance is 115 miles; to the embouchure of the Little Belt, 145 miles; to that of the Great Belt, 147 miles; to Grön Sound, 205 miles; to a point south of Copenhagen, off Skanor, 255 miles. Around Denmark the distances are, respectively, 520, 490, 480, 490, and 445 miles, representing savings of distance in favor of the canal of 405, 345, 332, 285, and 190 miles. Allowing an average speed of 14 knots for the sea routes (too high an estimate except for torpedo vessels) and 6 knots for 60 miles of the canal routes, with 14 knots for the rest of the distance, we arrive at the following times: Helgoland to Kiel, by sea 37 hours, by canal 14 hours; to Little Belt, by sea 35 hours, by canal 16 hours; to Great Belt, by sea 34.5 hours, by canal 16 hours; to Grön Sound, by sea 35 hours, by canal 20 hours; to Skanor, by sea 31.3 hours, by canal 24. From Wilhelmshaven to Helgoland is 45 miles, to Cuxhaven is 62 miles, and to the Elbe mouth of the canal 16 miles farther. The times given above, of course, are only approximate, but they serve to illustrate the great gain in time obtained by the canal. Bad weather and fogs have not been considered. There can, however, be no question of the strategic value of the canal to Germany. As long as Helgoland and Kiel are defended, so long may the canal be considered free from attack. The power to double the naval force operating either in the North Sea or in the Baltic practically doubles the power of the German navy.

## THE ITALIAN MANŒUVRES.

The manœuvres were conducted under the supreme command of Admiral the Duke of Genoa, who hoisted his flag aboard the royal yacht *Savoia*.

The following theme was set: An enemy in superior force decides to risk a landing in order to destroy communications with the interior and to bombard coast towns. When hostilities are declared, however, his fleet is divided, and, although united, superior to the defense, separated, either part is inferior. Hence his first object is to effect junction and then to defeat the defense, so as to remain master afloat before landing. The object of the defense is to prevent the junction, to destroy the hostile divisions separately, and to defeat every effort to bombard or land.

The defense was intrusted to the *Active Fleet*; the attack to the EVOLUTIONARY FLEET, organized July 21.

The defense was called *green* and the attack YELLOW; following the usual custom of this office, the *green fleet* will be designated as *red* and the YELLOW FLEET, BLUE.

The following-named vessels took part in the manœuvres:

H. R. H. the Duke of Savoy, commander in chief, aboard *Savoia*; Vice-Admiral Carnevaro, commanding *Active Fleet*, aboard *Sicilia*; Rear-Admiral E. Gualterio, second in command, aboard *Francesco Morosini*.

*Active Fleet.*

| Ship.                                 | Class.                                | Date of completion. | Displacement.       | Guns main battery. | Maximum speed. | Complement. |
|---------------------------------------|---------------------------------------|---------------------|---------------------|--------------------|----------------|-------------|
| SPECIAL.                              |                                       |                     | <i>Metric tons.</i> |                    | <i>Knots.</i>  |             |
| <i>Savoia</i> (flag) .....            | Royal yacht .....                     | 1883                | 2,850               | .....              | 14.5           | 225         |
| <i>Elba</i> (tender) .....            | Protected cruiser, second-class ..... | 1892                | 2,732               | 10                 | 17.9           | 257         |
| <i>First division</i> (Maddalena).    |                                       |                     |                     |                    |                |             |
| <i>Sicilia</i> (flag) .....           | Battleship .....                      | 1891                | 13,298              | 28                 | 18.2           | 785         |
| <i>Sardegna</i> .....                 | do .....                              | 1890                | 13,860              | 28                 | 20.2           | 785         |
| <i>Marco Polo</i> .....               | Protected cruiser, first-class .....  | 1892                | 4,583               | 16                 | 19             | 315         |
| <i>Piemonte</i> .....                 | Protected cruiser, second-class ..... | 1888                | 2,639               | 12                 | 22.3           | 257         |
| <i>Partenope</i> .....                | Torpedo vessel .....                  | 1889                | 834                 | 1                  | 19             | 111         |
| <i>Second division</i> (Maddalena).   |                                       |                     |                     |                    |                |             |
| <i>Francesco Morosini</i> (flag) .... | Battleship .....                      | 1885                | 11,324              | 10                 | 16.5           | 509         |
| <i>Andrea Doria</i> .....             | do .....                              | 1885                | 11,204              | 10                 | 16.5           | 509         |
| <i>Giovanni Bausan</i> .....          | Protected cruiser, second-class ..... | 1883                | 3,330               | 8                  | 17.9           | 276         |
|                                       |                                       |                     |                     | <i>Tubes.</i>      |                |             |
| <i>Tripoli</i> .....                  | Torpedo vessel .....                  | 1886                | 848                 | 4                  | 20             | 111         |
| <i>Trinacria</i> .....                | Torpedo school-ship—umpires .....     | 1884                | 9,207               | .....              | 18.5           | 259         |
| <i>Pagano</i> .....                   | Cistern ship .....                    | 1877                | 390                 | 2                  | 9              | 34          |
| <i>Citta di Milano</i> .....          | Transport .....                       | 1886                | 2,123               | 2                  | 9              | .....       |
| TORPEDO BOAT FLOTILLA<br>(Maddalena). |                                       |                     |                     |                    |                |             |
| <i>First division.</i>                |                                       |                     |                     |                    |                |             |
| <i>No. 102</i> .....                  | Torpedo boat, first-class .....       | (1887)<br>(1888)    | 79                  | 3                  | 22.5           | 17          |
| <i>No. 104</i> .....                  | do .....                              | (1887)<br>(1888)    | 79                  | 3                  | 22.5           | 17          |
| <i>No. 110</i> .....                  | do .....                              | (1887)<br>(1888)    | 79                  | 2                  | 22.5           | 17          |
| <i>No. 124</i> .....                  | do .....                              | (1889)<br>(1892)    | 79                  | 2                  | 23             | 17          |
| <i>No. 149</i> .....                  | do .....                              | (1894)<br>(1895)    | 79                  | 2                  | 22             | 17          |
| <i>No. 195 (?)</i> .....              | .....                                 | .....               | .....               | .....              | .....          | .....       |
| <i>Second division.</i>               |                                       |                     |                     |                    |                |             |
| <i>No. 117</i> .....                  | Torpedo boat, first-class .....       | 1895                | 79                  | 2                  | 22             | 17          |
| <i>No. 127</i> .....                  | do .....                              | (1889)<br>(1892)    | 79                  | 2                  | 23             | 17          |
| <i>No. 141</i> .....                  | do .....                              | (1893)<br>(1894)    | 79                  | 2                  | 22             | 17          |
| <i>No. 142</i> .....                  | do .....                              | (1893)<br>(1894)    | 79                  | 2                  | 22             | 17          |
| <i>No. 148</i> .....                  | do .....                              | (1894)<br>(1895)    | 79                  | 2                  | 22             | 17          |
| <i>No. 157 (?)</i> .....              | .....                                 | .....               | .....               | .....              | .....          | .....       |

## Active Fleet—Continued.

| Ship.                  | Class.                          | Date of completion. | Displacement.       | Guns, main battery. | Maximum speed. | Complement. |
|------------------------|---------------------------------|---------------------|---------------------|---------------------|----------------|-------------|
| <i>Third division.</i> |                                 |                     | <i>Metric tons.</i> |                     | <i>Knots.</i>  |             |
| No. 91.....            | Torpedo boat, first-class ..... | {1887<br>1888}      | 79                  | 3                   | 22.5           | 17          |
| No. 99.....            | do .....                        | {1887<br>1888}      | 79                  | 3                   | 22.5           | 17          |
| No. 103.....           | do .....                        | {1887<br>1888}      | 79                  | 3                   | 22.5           | 17          |
| No. 134.....           | do .....                        | {1889<br>1892}      | 79                  | 2                   | 23             | 17          |
| No. 139.....           | do .....                        | {1893<br>1894}      | 79                  | 2                   | 22             | 17          |
| No. 146.....           | do .....                        | {1893<br>1894}      | 79                  | 2                   | 22             | 17          |

Vice-Admiral Morin, commanding MANŒUVRE FLEET, aboard RE UMBERTO; Rear-Admiral Gonsalez, second in command, aboard ITALIA.

## MANŒUVRE FLEET.

| Ship.                              | Class.                              | Date of completion. | Displacement.       | Guns, main battery. | Maximum speed. | Complement. |
|------------------------------------|-------------------------------------|---------------------|---------------------|---------------------|----------------|-------------|
| <i>First division (Vado).</i>      |                                     |                     | <i>Metric tons.</i> |                     | <i>Knots.</i>  |             |
| RE UMBERTO (flag).....             | Battleship .....                    | 1888                | 13,893              | 28                  | 18.2           | 785         |
| LEPANTO.....                       | do .....                            | 1882                | 15,900              | 16                  | 18.3           | 748         |
| PIERAMOSCA.....                    | Protected cruiser, second class.... | 1888                | 3,595               | 8                   | 17.5           | 315         |
| CALATAFIMI.....                    | Torpedo vessel .....                | 1892                | 846                 | 1                   | 20             | 111         |
| <i>Second division (Cagliari).</i> |                                     |                     |                     |                     |                |             |
| ITALIA (flag).....                 | Battleship .....                    | 1880                | 15,654              | 16                  | 18             | 748         |
| RUGGERO DI LAURIA.....             | do .....                            | 1884                | 11,174              | 10                  | 16.5           | 509         |
| STROMBOLI.....                     | Protected cruiser, second class.... | 1886                | 3,898               | 8                   | 17.3           | 315         |
| EURIDICE.....                      | Torpedo vessel .....                | 1891                | 919                 | 1                   | 19.8           | 111         |
| TORPEDO BOAT FLOTILLA (Cagliari).  |                                     |                     |                     |                     |                |             |
| <i>First division.</i>             |                                     |                     |                     | <i>Tubes</i>        |                |             |
| NIBBIO.....                        | Torpedo boat, first-class .....     | 1888                | 139                 | 3                   | 26.6           | 24          |
| ARVOLTOIO.....                     | do .....                            | 1888                | 139                 | 3                   | 26.6           | 24          |
| AQUILA.....                        | do .....                            | 1888                | 139                 | 3                   | 26.6           | 24          |
| FALCO.....                         | do .....                            | 1888                | 139                 | 3                   | 26.6           | 24          |
| SPARVIERO.....                     | do .....                            | 1888                | 139                 | 3                   | 26.6           | 24          |
| <i>Second division.</i>            |                                     |                     |                     |                     |                |             |
| No. 64.....                        | Torpedo boat, first-class .....     | {1885<br>1887}      | 79                  | 3                   | 22.5           | 17          |
| No. 100.....                       | do .....                            | {1887<br>1888}      | 79                  | 3                   | 22.5           | 17          |
| No. 101.....                       | do .....                            | {1887<br>1888}      | 79                  | 3                   | 22.5           | 17          |
| No. 150.....                       | do .....                            | {1894<br>1895}      | 79                  | 2                   | 22             | 17          |
| No. 153.....                       | do .....                            | {1894<br>1895}      | 79                  | 2                   | 22             | 17          |

## MANŒUVRE FLEET—Continued.

| Ship.                  | Class.                         | Date of completion. | Displacement.       | Guns, main battery. | Maximum speed. | Complement. |
|------------------------|--------------------------------|---------------------|---------------------|---------------------|----------------|-------------|
| <i>Third division.</i> |                                |                     | <i>Metric tons.</i> |                     | <i>Knots.</i>  |             |
| No. 66.....            | Torpedo boat, first-class..... | { 1885<br>1887}     | 79                  | 3                   | 22.5           | 17          |
| No. 83.....            | do .....                       | { 1888<br>1889}     | 79                  | 3                   | 21             | 17          |
| No. 112.....           | do .....                       | { 1889<br>1892}     | 79                  | 2                   | 23             | 17          |
| No. 115.....           | do .....                       | { 1889<br>1892}     | 79                  | 2                   | 23             | 17          |
| No. 133.....           | do .....                       | { 1889<br>1892}     | 79                  | 2                   | 23             | 17          |
| No. 135.....           | do .....                       | { 1893<br>1894}     | 79                  | 2                   | 23             | 17          |

Junction of BLUE SQUADRON and the routes allowed were comprised within a line from Cape Vado to its intersection with the meridian of Cape Spartivento.

In addition to information obtained by cruisers, semaphores and lookout stations previously established, and pigeons from Spezia, Maddalena, Rome, and Gaeta were allowed for *Red* and from Ozieri, for BLUE.

Whenever deemed necessary by the supreme authority an armistice will be granted to allow coaling at indicated ports. A second order will indicate the resumption of hostilities. Upon each flagship an officer of the general staff will be embarked as umpire.

Value of fleet fractions or detached vessels will be determined as follows: A first-class BLUE vessel will rate as one and one-half a *Red* vessel; the *Marco Polo* will rate one-half. A torpedo boat squadron to augment by one fourth the value of a battleship.

The four *Red* battleships and the *Marco Polo* to have a tactical value of four and one-half; the BLUE squadrons each to have a value of three and three-fourths, and, including torpedo boats, the Vado squadron four and one-fourth, the Cagliari squadron three and seven-eighths. A single torpedo boat to have no tactical value. After twenty-four hours torpedo boats to lose half their tactical value, and after seventy-two hours, all; but original value can be recovered by lying twenty-four hours in a friendly port. This would be a great disadvantage to BLUE, as boats were allowed to go only either to Savona or Cagliari.

Tactical contact to be determined by coming to 3,000 meters (3,281 yards) in the daytime and by visibility at night.

(1) The various forces to weigh together.

(2) Speed for *Red* battleships 10 knots; for BLUE, 8 knots. Other vessels of either force can steam 12 knots.

Junction to be effected either south or north of Elba by either the east or west channel in face of an adversary superior in speed. After junction speed conditions to be reversed.

The ships assembled in Spezia, the BLUE FLEET, under Vice-Admiral Morin, being the first to arrive. August 13 the *First division* of the *Red Fleet* arrived, followed August 15 by the *Second division*. Admiral the Duke of Genoa arrived August 19, and on the 21st hoisted his flag on the *Savoia*. August 22 the SECOND DIVISION of the BLUE FLEET weighed for Cagliari and the *Red Fleet* the next day for Maddalena, followed the same afternoon by the FIRST DIVISION of the BLUE FLEET for Vado.

In order not to circumscribe the BLUE FLEET too closely at the beginning of hostilities, the northern limit was changed to a line from Cape Mele to Cape Corso. August 24 the *Savoia* with the torpedo vessel *Elba* in company, left about 9 p. m. for San Stefano, the temporary base of observation selected by the commander in chief. August 26 it was ordered that hostilities would begin next day and all the squadrons were ordered under way at 4 p. m. August 27 the *Savoia* weighed and proceeded to the probable theater of operations.

August 26, 27, while patrolling the Piombino Channel, torpedo boats Nos. 102 and 134 collided. The *Trinacria* and *Pagano* towed them to Port Longone, where the *Savoia* anchored to investigate the collision. The boats were not seriously damaged, and were repaired sufficiently by the *Trinacria* to be sent under convoy to Spezia. August 28 the *Savoia* weighed at 10 a. m., the *Elba* at 11, and searched in different directions for the hostile fleets. Passing to the eastward, the torpedo vessel *Elba* made out the *Sicilia*, *Sardegna*, *Marco-Polo*, *Francisco*, *Morosini*, *Andrea-Doria*, *Giovanni Bausan* in column, with the torpedo vessels *Partenope* and *Tripoli* to port, steaming near Capraia, and guarding the channels through which alone the enemy could effect junction. During the day a flight of pigeons was made, distant about 150 kilometers (93.2 miles) from Rome.

At 5 p. m. the *Savoia* anchored at Porto Ferraio, where four *Red torpedo boats* put in during the night for shelter. The *Trinacria*, with a detachment of torpedo boats, guarded the Piombino Channel. About sunset the San Benigno semaphore station reported the BLUE FIRST DIVISION about 30 miles southwest, heading southwest, and the Giglio semaphore station that the SECOND DIVISION was in sight to the southwest, distant 20 miles.

August 29 the *Elba* was sent to San Stefano, returning the same day. The *Trinacria* was seen at anchor near Port Longone. In the meantime the *Savoia* weighed and cruised in the Piombino Channel, where the *Elba* rejoined her at 6.40 p. m.

#### *Red Fleet.*

August 26 weighed from Maddalena at 4 p. m. and stood for the Island of Capraia, where patrol duty was taken up guarding the Piombino Channel and the western passes about Elba. Nothing of any moment occurred, nor were the enemy's vessels seen. No news was

obtained of the movements of the southern force, and as approaches from that direction had been thoroughly reconnoitered and the semaphore stations were vigilant, it was deemed impossible for that force to break through as long as the weather kept clear. August 29, however, conditions became unfavorable for the defense, the weather became unsettled, there was no moon, and it was feared the SOUTHERN DIVISION would slip through undiscovered. Under these circumstances, Vice-Admiral Canevaro determined to abandon the channel defense and to attack the NORTHERN DIVISION with his whole force to surprise it and put it out of action by tactical contact under the rules. The *Active Fleet* steered north, with cloudy weather and a northwest wind and sea. At 7.15 p. m. tactical contact was made with the FIRST DIVISION, consisting of the RE UMBERTO, LEPANTO, FIERAMOSCA, CALATAFINIA, and the torpedo boats of the FIRST DIVISION. It had been the intention of Vice-Admiral Canevaro to turn south when he had destroyed the FIRST DIVISION and attack the SECOND DIVISION of the BLUE FLEET, but the commander in chief, upon receiving information of what had taken place, ordered an armistice from San Stefano, with instructions by telegraph for the *Red Fleet* to rendezvous at San Stefano and the BLUE FLEET at Gaeta.

#### BLUE FLEET.

Under the rules the FIRST DIVISION of the BLUE FLEET had been compelled to return to Vado, from which port Vice-Admiral Morin telegraphed the result to the commander in chief August 30.

The SECOND DIVISION kept out of range of the semaphore district allotted the enemy, appearing in sight at long range occasionally, but failed to make an effort to break through, in spite of the darkness toward the latter part of the period. The first phase terminated when the armistice was ordered.

August 31 the *Savoia* left San Stefano and arrived at Leghorn September 1. The *Marco Polo* and *Elba* were detached by orders from Rome. September 3 telegraphic orders were issued to both fleets that hostilities would begin at midnight.

The southern limit of the theater of war was fixed by the line between Capes Figari and Circeo.

The objects set the BLUE FLEET were: First, to sever lines of communications ashore, thus to prevent junction and cooperation by the land forces; secondly, to find the defending (Red) force and with a superior force to bring it to action, also to bombard maritime towns.

The *Red Fleet* was first to guard the railway communications; secondly, to surprise the enemy under conditions that would deprive him of the tactical advantage due to numerical superiority.

September 4 both fleets went to sea shortly after midnight. The *Red* cruisers were sent to the north of Elba to scout; the *Pina* laid a line of

torpedoes (submarine mines) before Civita Vecchia to prevent bombardment, and the rest of the fleet concentrated at Porto-Ferraio. The BLUE FLEET sent a torpedo boat flotilla to destroy the cable communications between the Tuscan Islands and Piombino, at the same time two other torpedo boats were detailed to operate between Monte Argentario and Monte Circeo while the main force concentrated its efforts to cut the San Remo-Spezia Railway line in the Gulf of Genoa. In the evening the *Red Fleet* put to sea and joined the cruisers north of Elba. The semaphore station of Monte Grosso controls an extensive view of about 30 miles, and it was hoped by its aid to watch the movements of the BLUE FLEET. September 5 the FIERAMOSCA, EURIDICE, CALATÁFIMI, and two divisions of torpedo boats attacked the railway communications on the Genoa-Spezia line, the cable at Piombino, and destroyed the semaphore stations of Pianosa, Giglio, and Gorgona. The main force attacked the southeast coast and bombarded Civita Vecchia. Informed that the enemy had appeared in the Gulf of Genoa, the *Red Fleet* started at once in pursuit, but failed to come in contact with the enemy's main force. It is well to note the exploits of the FIERAMOSCA. She cut the cable at the Island of Gorgona and destroyed the semaphore station there, an advanced post and a most important strategic position. She took part in cutting railway communications, bombarding Levanto, near Spezia where the railway works were destroyed. Next she blew up the viaduct of Recco, situated about 14 kilometers (8.7 miles) south of Genoa, and finally successively bombarded Varazze and Savona and blew up the railway about Albisola. During thirty-six hours she eluded the whole *Red force*.

September 6 the *Giovanni Bausan* cruiser, aided by four torpedo boats, however, succeeded about 10 a. m. in putting the cruiser FIERAMOSCA out of action. About noon the *Sicilia*, *Sardegna*, *Francesco Morasini*, *Andrea Doria*, and *Partenope* were off Spezia steering south. At 3 p. m. the *Partenope* was sent to communicate with the signal station at Palmaria. She returned with the signal flying, "You are nearing the enemy." At this time the vessels were steering toward Elba, and the BLUE FLEET was bombarding Porto Ferraia. Course was changed at once, as by the rules governing the second phase the *Red* vessels were inferior by day to the BLUE vessels and were unable to assist in the defense of their base.

September 7 another effort was made to bring on a general action, but the BLUE FLEET evaded the attempt. During the night, however, an engagement took place between the torpedo vessel *Tripoli* and the *Trinacria* and the cruiser STROMBOLI. A pigeon was sent from the *Sicilia* to Spezia, 60 kilometers (37.9 miles) distant, informing the commander in chief of the effort to bring on a general engagement. During the day the *Red Fleet* covered Genoa, while the BLUE FLEET sought to destroy communications, cable connections, and signal sta-

tions, among others destroying that at Capraria. During the night **No. 133** was put out of action. September 8 hostilities ceased. The *Red Fleet* was ordered to rendezvous at Genoa and the **BLUE FLEET** at Spezia. This ended the manœuvres proper, but a third part took place which deserves notice. The exercises consisted of (1) an attack on the fortified port of Spezia; (2) a review by the King, who hoisted the royal standard aboard the *Savoia*, followed by tactical evolutions and target practice at moving targets.

September 23 the two fleets united in the Gulf of Rapallo and remained at anchor during the night.

September 24, at 6 a. m., the ships were off Spezia, about 5 kilometers (3.1 miles) from Tino Island. The torpedo-boat flotilla of the defending force in two squadrons, each of three divisions, was posted well screened in Venere and Serici bays. The signal for the attack was given by hauling down a flag hoisted at the Palmaria semaphore station, following the motions of the *Savoia*. The forts and ships exchanged fire with blank cartridge. After the signal to cease firing, made from the *Savoia*, the vessels moored in the bay.

September 25 the royal review took place, followed by target practice. The fleet formed double column, each ship towing a target. Returning to the anchorage, the vessels passed astern of the *Savoia* with engines stopped. Details concerning these exercises are wanting.

September 26 the Duke of Genoa relinquished his position of commander in chief and hauled down his flag.

#### CASUALTIES.

A man fell overboard from one of the vessels of the **SECOND DIVISION** the night of August 27, 28. The vessels were in squadron, cruising under obscured moonlight and exercising every precaution to avoid being seen from the Canevaro semaphore station. The signal "man overboard" was made, the vessels stopped, lowered lifeboats, picked up the man, and retained formation throughout.

**AQUILA**, torpedo boat, thrown against the **REIGGIERO DI LAURIA** by a heavy sea August 27. The after part of the deck was injured by an anchor driving into it when the vessels came together. The **AQUILA** was escorted to Maddalena for repairs, and left in two days to rejoin the **FIRST DIVISION**.

*Nos. 103 and 134*, August 27, came into collision while cruising in the Piombino Channel. Neither boat was seriously damaged. *Nos. 91 and 99* and the *Trinacria* and *Pazano* went to their assistance. Temporary repairs were made at Port Longone and the boats were sent to Spezia. Lieutenants Millo and Rouca, commanding *Nos. 91 and 99* were especially commended in general orders for intelligent and efficient help rendered on the occasion of the collision. There was no panic aboard the colliding boats. All the above incidents indicate a high state of discipline.

## PIGEONS.

As noticed in the theme, a regular homing-pigeon service was organized, using the military cotes of Spezia, Maddalena, Rome, and Gaeta for the *Red Fleet*, and that of Ozieri for the BLUE FLEET. The principal centers were established aboard the *Sicilia*, under the direction of a lieutenant of infantry, the RE UMBERTO, under the direction of an officer especially detailed by the war office, and aboard the *Savoia* by an officer similarly detailed. Petty officers assisted. Four flights were made, one from the *Sicilia* at Maddalena, fifteen hours to Rome; another from the same ship between Capraia and Vado, and two from the *Savoia* between Elba and Monte Argentario. The pigeons are kept in appropriate cages, well aired. Female birds seem better for short flights. Male and female birds are kept separate. Each flight comprised about five birds fed about two hours before starting. Speed was about 77 kilometres (47.8 miles) an hour.

The messages are inclosed in a goose quill sealed at each end and secured under one of the center tail feathers. The messages are written on thin vellum, rolled, and so placed that the address can be read through the quill. A journal is kept of each bird, showing date of hatching, name, number, the number of the cote it belongs to, the flights made and their character, whether good, passable, or mediocre. The bird's number is stamped indelibly in various places under the wings and the number of the cote under the tail.

August 27, from the *Savoia*, seven birds were released, and all arrived at Rome the following day, though the last bird lost its message. August 30 a flight of three birds from the same ship arrived successfully. September 2 a bird arrived in Rome that had returned to the *Sicilia*, having been released August 31.

Many results have been kept secret, but the general result is regarded as eminently satisfactory.

## COMMENTS.

The first phase is interesting chiefly from the action of Vice-Admiral Carnevaro in seeking the FIRST DIVISION of the BLUE FLEET with his whole force and destroying it. It is to be regretted the dispositions taken to find the enemy are not fully given, nor is the information of the movements of the BLUE full enough to warrant a decided opinion as to whether the search for the FIRST DIVISION was preferable to that for the SECOND DIVISION. From Maddalena to Ranosa is 88 miles, to Giglio 96 miles, and to Capraia 110 miles; from Vado to Capraia 95 miles, and from Cagliari to Capraia 285 miles. At 8 knots, either BLUE DIVISION using the Piombino Channel would be in sight about twelve hours from semaphore signal stations during the day, and possibly about ten hours during ordinary nights. These considerations rendered it nearly impossible for BLUE to attempt the Piombino Channel,

making it highly probable any effort to pass would be toward the Corsican Coast. The northern, or FIRST DIVISION, was signaled a long distance away and found by the *Red* force. It is not known whether any plan previously arranged was to bring the BLUE DIVISIONS simultaneously upon the field of operations. Speaking generally, the task set BLUE was hopeless, for *Red* coming into tactical contact at either extremity of the semaphore field of observation with a BLUE DIVISION would have a marked superiority of force and speed for about six hours. As far as can be determined from the information at hand, the solution of the problem by Vice-Admiral Carnevaro was based on sound military principles.

The result of the raiding operations during the second phase is remarkable chiefly for the impunity enjoyed during about thirty-six hours by the cruiser FIERAMOSCA and the effect to be produced upon the mobilization and concentration of the land forces by such raids. The Italian authorities consider that this raid has demonstrated the vulnerability of the coast. As a practical effect, an addition of 10,000,000 lire (\$1,930,000) has been asked for in the naval estimates. The only adequate protection against the raids of fast cruisers is to meet them with similar vessels stationed along the coast.





## VII.

# THE LOGICAL CONSTITUTION OF THE FRENCH FLEET.

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Translated from *le Revue des Deux Mondes*, March 1, 1897, by Lieut. Commander  
E. B. BARRY.

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Having reached one of those periods when a nation asks if it is not time to change the point of application of her exterior efforts; uncertain of the exact political shifting, of which she no longer is absolute mistress to direct as she desires; doubtful if the next war will be continental or maritime, France sees she has neglected her navy. Not that she has not docily furnished the annual sums asked to maintain the naval establishment; not that she has not sought in many ways to control the employment of these sums, nor that she has not seen serious defects in maritime development. What has been wanting has been in the method of distribution of financial expenditure, and tenacity in the repression of abuses, the gravest of which, in the working of dockyards for instance, owed their origin to our social condition and their development to parliamentary rule. What, above all, has been wanting is a clear, comprehensive view, of what this naval establishment should be; of what, in the first place, ought to be the armed force acting on the sea and by means of the sea, the military fleet—the sole reason for existence and supreme expression of the naval establishment. In the following study, after having recalled the general principles of the constitution of fighting fleets and the conditions essential to their existence, to their prosperity, and to their success, we shall apply these principles to the diverse elements of the French fleet and try to find how it can satisfy these conditions.

### I.

The determination of the characteristics of a fighting fleet depends—

- (1) Upon the geographical situation of the country under consideration.
- (2) Upon the hydrographic conditions of the littoral and of the seas washing the coast.
- (3) Upon its exterior and interior political situation.
- (4) Upon its resources.
- (5) Upon the faculties and special tendencies of the race inhabiting it.

Of these, some factors have a permanent, almost immutable, character; others, a relatively accidental and variable one. This distinction must be remembered.

Let us examine the geographical situation of France. Few lands are more favorably situated for the development of maritime power, or that better justify the existence of a fighting fleet. Better situated than even England, France is placed upon the three principal seas of Europe, of which she commands, or can command, the embouchures either by the channel ports and the channel itself, or by those of Oran; for Algeria can be considered now as the African extension of France. Upon the European continent, in any case, we occupy what in strategy is called the central position. Unfortunately we do not gather all the benefits shown in 1814. We are in need of an interior line of communication; in need of a maritime canal to permit sure and rapid concentration in either sea of the two main divisions of our naval forces now separated by the Iberian Peninsula. Everyone knows what opposition during the past twenty years has been encountered by the proposition to pierce the Pyrenean Isthmus. What is less known, however, is that at this present moment Great Britain is executing important works at Gibraltar. The day will come when our eyes will be opened to this danger, and from this moment we should determine the draught of our battleships in view of the eventual utilization of an interior maritime waterway. We know already how to do it. A few years after the war of 1870 an expert constructor designed and built an armored vessel more capable of operating upon the shoal coasts of the North Sea than were any of her predecessors; the *Redoutable*, still one of the best units in our active fleet, easily can traverse the proposed canal. Here is an interesting indication, which later we shall see confirmed.

If the deep waters of the Mediterranean, as well as those on the coast of Brittany, easily admit all draughts, the weighty battleships, immersed by their armor to a depth of over 8 meters, will not be well off upon the channel coast to the eastward of Cotentin, and particularly beyond Cape Griz Nez, where the North Sea sand banks begin. The interest we take in trying to diminish the difficulties of free movement for large vessels in Calais and Dunkirk roads is before the eyes of all prudent sailors. Dunkirk is, by the force of circumstances, a more important base than Cherbourg. Let us lay down the rule that our best ships shall not draw more than 8 meters from the channel to the end of the Baltic. In northern navies this is an admitted rule. But why impose this limit since it concerns vessels called frequently, almost exclusively, to the Mediterranean? The five armored cruisers of the *Italia* and *Re Umberto* types, these giants of 14,000 to 15,000 tons, succeed very well with draughts approaching 10 meters, perhaps, but cases can occur where an expert adversary can reap advantages from the caution that must hamper their manœuvres near land.

Difference of condition between the Atlantic and the Mediterranean

should be more potent to determine unit types than should hydrographic characteristics. This difference of condition seems very visible without the necessity of referring to the phenomenon of tides. On one side, a obscured sky, fogs, poor light; on the other, brilliant daylight, clear horizon, where everything can be seen; here, the long waves of the Atlantic, powerful undulations, that lift the heaviest vessels like straws and then drop them into the masses of spray; there, waves, violent and raging, but short, that hurl upon the armored vessel "parcels of water;" attacks more troublesome than dangerous. Besides, to the anger of the big blue lake, quickly appeased, chains of big islands oppose barriers behind which shelter quickly can be found.

All this justified our forefathers, people of sense and judgment, in having two distinct navies; the navy of Ponant with its high freeboard ships, strong sided and heavily sparred; and the navy of the Levant with its fine galleys, agile and low, whose tactics, profiting by a motive power independent of the caprice of the wind, resembled very much those of modern fleets. Must we make use of this example and admit two distinct types of fighting ships; one with high sides (at least forward), the other with a low platform; one covered with vast superstructures which offer easy targets to the oft-repeated blows of rapid-fire artillery, the other presenting to the adversary only a reduced target and moving surface? Without hesitation this must be done.

It is not enough to search for the type of a seagoing monitor for the Mediterranean; this is easy. Intensity of fire will be so great in the battles of the future, and the destruction will be so complete by high-explosive shell of everything above the armored belt, that it would be well in the present time to direct the attention of constructors to the general problem of the lowering of the target and the suppression of this vertical wall. Willingly or not, the ship of the line must become like a fortress; since to desire to cover everything with armor is ruinous folly, and to pretend that one can sacrifice the upper works, where above all are installed essentials, where the crew lives, is to get a very strange idea of the practical conditions of war, to forget that one fights far from his base, and that to regain it one must take account of the sea and bad weather. Here, then, is what imposes upon us the study of two fixed elements to determine the types of a fighting fleet: The geographical position, with the special characteristics of the seas that wash the littoral and the hydrographic conditions; draught not greater than 8 meters (26.24 feet); distinct types of the larger units of combat for the ocean and for the Mediterranean; low free board in the latter, awaiting the solution referred to above.

## II.

Let us examine the variable factors and then the political situation both interior and exterior. It is unnecessary to demonstrate that interior politics can exert an influence upon the existence of a big navy, as the actual facts within the past ten years conclusively show.

When the war of parties results in changing every six months the direction given to naval construction, almost complete paralysis attacks the service that has for its object the maintenance of the naval establishment on an efficient basis. It has often been said that none of the great national organisms require as much as does the navy—stability, sequence of ideas, perseverance, and development. History proves it. Our fleets were victorious, or strong enough to intimidate the eternal adversary under solidly established powers; they were vanquished under feeble or unstable governments. Nor is this all. Wedded to peace, modern democracies, when they think of war, allow only the defensive role; and it is with a sincere but dangerous conviction that they think to assure the integrity of their frontiers in constituting military organisms which respond exclusively to this. Besides, still more powerful is this instinct when it is combined with recollections of events as terrible as those of 1870; recollections which suffice to drive away all idea of aggressive politics. Unhappily it is necessary to distinguish between politics followed and the method of war which will be adopted. Let us be careful to avoid thinking that the passive condition of one will be the obligatory consequence of the reserve of the other. Whoever confines himself to defense alone courts risks without making his adversary run any, and it is right to say in modifying a celebrated statement of De Maistre: "Let us preach the defensive to diplomats and the offensive to military men." One can not prevent one's self from thinking of this after reviewing the defensive character which for twenty years has been assumed by our navy, the general composition of the fleet where coast-defense vessels dominate; that is to say units of combat kept in territorial waters by a small coal supply; and that it concerns each unit considered alone where defensive weapons lead to offensive ones. Finally that it concerns those war ports in front of which are accumulated powerless walls and innumerable batteries. Should we search where to place the responsibility for a state of things which without doubt reduces the strategic value of a military organization otherwise so well equipped with personnel, we will be led too far. Not long ago it was stated that we only had the fleet representing our politics and that the long incertitude of one explained the want of cohesion of the other. The excuse is insufficient, as we shall see, and it is inexact to state that the French fleet wants cohesion; on the contrary, taken altogether with this defensive character, it is homogeneous and besides it possesses remarkable tactical qualities.

The misfortune is that an offensive character and strategic qualities would be worth much more to it. Perhaps it would be more exact to say that for too long and too often our diplomatic timidity has been shown, producing in the highest military circles a sort of discouragement, depression, unconscious abandonment of essential principles in the art of war; and that these valued chiefs who thought to apply specious theories to the equilibrium of armament and protection did nothing in

reality but submit to the depressing influence of their official condition. And it is thus through the want of firmness in daily acts more than by the want of precise system in general views that exterior French politics exerted the worst influence upon the constitution of our naval force. But uncertainty or timidity gives no sufficient excuse. It is not sufficient, because all the same those who direct the navy must admit the hypothesis of a war against the Tripple Alliance and firmly maintain their ground, as does the majority of the nation in its honest and artless conception of the highest if not the most tangible interests of our country. It has been necessary to acknowledge recently that a vigorous effort is required if we expect to contend with advantage against the united squadrons of Germany, Italy, and Austria. And how will it be later, as since 1890 these three powers have put into service 47 vessels, displacing 160,000 tons, while our fleet has been augmented only by 22 vessels, displacing 144,000 tons? Upon the hypothesis of a war against England, and above all in regard to what should have been done during the past ten years to guard against this great evil, I dare not even speak; for to struggle without too many unfavorable chances against such an adversary requires not only the construction of many vessels (England can construct twice as many and much faster) to perfect to the highest point types already known (what difference does a slight individual inferiority amount to in battle units if they have a crushing numerical superiority?), but also the fostering and use of all the resources of inventive genius, of a bold spirit of initiation, fertile in unexpected resources, detached from slow routines and vain formulæ. It requires the adoption of new methods of warfare, and to make use of these methods so as rapidly to create appropriate engines to be always in advance of a type as we were thirty or forty years ago—in a word, to do better and differently from England. Is this possible, and has it been tried? What has become of this inventive genius, formerly so brilliant and envied abroad? Has it been encouraged? Who dares to say so when one can see—one example among many—an invention like that of submarine boats, so dreaded by the English, checked in its natural development by the disdain of some and the jealousies of others? What has become of the initiative and reform spirit in all the branches of a service which showed such men as the Choiseuls, Suffrens, Granchins, Portals, d'Haussez, Trottes, de la Roche, Labrousse, and Gueydons, at a time like the present, when the worst reproach that can be made against a man is to find himself shut up in the rigid mold that all routine bodies impose upon intellect and where a squadron commander is suspected who, in order better to prepare his command for war, tries to escape from the common routine? Have war methods been changed or at least renewed and rejuvenated? One invents little in this line. Has anybody made an effort to find out in what way cruiser war against commerce will be as much justified to day as it was little justified eighty-four years ago, after we already had lost

exterior bases, fleets, and men, while at the same time England produced on her own soil enough to insure her subsistence, and France had something to lose in losing her merchant marine. Let us see if perhaps the actual conditions of naval war will not be more favorable to an armed descent than were those of 1692, 1799, and 1805; a question which the German naval officers have asked themselves for a long time, and which one of them lately answered in the affirmative. If people are wedded to fleet war, to the grand classical battle, let them recollect that we can not, inferior in number as we are, balance the power of our adversaries except by successive and rapid concentrations of our forces, either to the north or to the south. How can this be done without a maritime canal?

### III.

Truly everything changes now, and this war will not seem so impious. Some, however, will find the change a little quick in this surprising about face, and they think to see the effect of a pressure in favor of an alliance—let us say an understanding—which not long ago stirred up the nation's anger. How act then to establish our calculations upon a solid basis? Well, since there is only a small number of Frenchmen who know, under a government of opinion and liberal discussion, upon which side France will be, let us admit in principle that our principal effort concerns the Triple Alliance. Later we shall determine what modifications it will be necessary to make to the elements thus determined, to adapt them to the exigencies of a struggle against England. It will not do when one wishes to determine the nature and value of his means of action, to take for point of departure the operations which he hopes to perform. In war there are at least two, and it is indispensable to preoccupy one's self with what the adversary may do; to discover what are, with his tendencies, his views, his special temperament, his proper means of action for defense and attack.

Germany—let us commence with her—had, until the reign of William II, a naval organization exclusively defensive, of which nothing was demanded but to enlarge a blockader's radius off the estuaries of the North Sea; to dispute as long as possible the Danish Straits; to worry the French fleet and to surprise its convoy either by an attack in flank beyond the Straits of Dover at the Skager Rack or at its debouché in the Baltic, should that fleet penetrate there to attempt a landing; finally, firmly to hold, before the Jade and Kiel, two favorable positions which the enemy would be obliged to mask by an important force before going north and later east. To this system, which combined judiciously defensive strategy with offensive tactics, aggressive under favorable circumstances, corresponded properly chosen engines: Four or five armored vessels of medium tonnage in the Jade, and with them some fairly rapid scouts; four others in the Baltic at Kiel; four armored vessels exactly alike, with low freeboard, to which was given the significant name of sortie vessels; thirteen armored gunboats and

old-fashioned vessels for the local defense of ports, anchorages, and estuaries; finally, a superb fleet of large and good torpedo boats subdivided into divisions from the beginning of peace, objects of attentive care, thoroughly well disciplined. There is no need of speaking of several ordinary corvettes intended to show the imperial flag in distant seas. Since the Russian friendship seems to have cooled, they have not ceased to preoccupy themselves with the means to augment the usefulness of this naval force, and the best means, certainly, was to give it the line of interior communication across Holstein. Work on the maritime canal from the embouchure of the Elbe to the Bay of Kiel was begun in June, 1887. In the meantime, always looking ahead, always exact to do what was necessary at the right time, the German admiralty laid down three armored coast-defense vessels, relatively speedy—in any case well armed—in spite of their small displacement and light draught (4,000 tons and 5.50 m.—18.04 feet, *Siegfried* type).

At this time William II came to the throne. He was known to be very fond of the sea and possessed of knowledge of naval matters. His grandfather, said he, had organized the glorious German army. He would undertake to organize the Imperial fleet and to make of it a perfect military instrument—that is to say, an offensive one; for, to make war is to attack. Immediately things changed; a vigorous impulse was given to the work on the maritime canal; Helgoland, acquired from the English, became the advanced post, the grand guard of this strategic débouché; extraordinary credits were asked from the Reichstag to double the naval force, to give it powerful battle units (four of the *Worth* type, two of the *Kaiser Friedrich III* type) swift protected cruisers—armored cruisers, in fact (five of the *Kaiser Augusta* and *Gefion* types)—like the new *Leipzig*, a superb vessel 10,000 tons, equal to the best battleship. The old units were remodeled, modernized, and the *König Wilhelm*, for example, the first German vessel, came out capable of fighting in line with the most recent types. The small armored coast defense vessels of the *Siegfried* type (if others were laid down), found to be good seagoing vessels, were given economical boilers and a supplemental supply of petroleum, so that their radius of action would permit them to participate in offensive operations. It is well to note that the offensive is, in fact, the character of this new fleet; and the democratic party of the Reichstag did not deceive itself when it eloquently denounced in 1889, and every year when the budget is discussed it in vain denounces, the ambitious views of the young sovereign, the inflamed speeches wherein are exalted the aggressive spirit of German sailors; the conferences at the Kiel Academy to proclaim the necessity of number, rapidity, movement, and the preeminence of attack over defense; and the enormous growth of maritime expenses which do not produce—far from it—any reduction of military charges, and the menacing projects which they indicate and the more and more marked hostility of England.

But we Frenchmen, what can we think of all this? Are we to believe that a fine fleet of 10 armored vessels of different kinds as well as large cruisers or scouts; of 20 to 25 seagoing torpedo boats, all ready, permanently manned or mobilized in forty-eight hours, all new vessels besides, and capable of 15 knots at the least—are we to believe the guarding of the North Sea as the only object of this? No, certainly not. People have taken care to let us know it is the Channel which the German fleet expects to make the theater of its operations and its offensive forward movement with that of the 150,000 men who ought to throw themselves upon the Meurthe and the Meuse, preceding by three or four days the enormous mass of fifteen army corps. And what are we to hope? Bar the Channel with our inferior forces? But if one can bar a defile of a few hundred meters with a small body of men, who in the end are always beaten, one can not thus bar a strait of 21 nautical miles with 6 battleships against 10, with 18 ships against 40. And again what? Carry on a red-tape war, worry the adversary, impede all his operations? But we have neither Big Belt nor Little Belt, nor the superiority of speed, unhappily not possessing six *Dupuy de Lôme*s. Are we to retire into the Bay of the Seine, equally dangerous to friend or enemy; or into the untenable Cherbourg; or into Rance and Trieux; finally to Brest? What use is it to discuss all these hypotheses, each worse than the others, and a defensive system which can not even present solid points of support on the most menaced littoral? More than ever before—alas for him that does not see it—the defensive will be disastrous in the Channel and the offensive is imposed upon us as much by evident political interests as by the well-understood military interest and the character of the nation. What forces are required for this offensive? Before the piercing of the Cimbric Isthmus little more than half the number of German seagoing vessels would suffice. To-day, in spite of the Russian cooperation, it is necessary to take note of interior communications which permit the new maritime route, and the number will not be less than two-thirds of the active naval force of the Empire—that is to say, 14 battleships or armored cruisers, 12 scouts, and at least 4 squadrons, each of 6 or 8 seagoing torpedo boats, with a destroyer for chief of group. To the 50 naval fighting ships which thus will form the squadron of operations will be joined 5 or 6 auxiliaries; squadron colliers and transports to replenish the light squadron with special coal, fresh water, torpedoes, relief crews—torpedo-boat crews exhaust so quickly—hospital ships, colliers, etc. This gives the number. What will be the characteristics of the different types? In a general manner predominance of offensive and strategic qualities; reduction of draught to the lowest possible limit. Let us particularize for the battleships and armored cruisers. These two types, which tend to merge into each other and to which can be applied with equal justice the name of unities of combat, will be rep-

resented by vessels of 10,000 tons for the one<sup>1</sup> and of about 7,000 for the other; maximum speed to be 20 knots; their fuel capacity, of which the hydrocarbons will take a large part, will not be inferior to 1,000 tons; the battery will not exceed for the one a caliber of 24 centimeters (9.45 inches), for the other 19 centimeters (7.48 inches), the perforation of heavy armored belts by means of huge cannon having become to-day, more than ever, a ruinous Utopia. On the other hand, this artillery, although of modest appearance, will be not less efficacious, comprising a great number of 16 or 14 centimeter (6.3 inches or 5.5 inches) rapid-fire guns with several short and light cannon of large caliber destined either to give curved fire or to discharge during battle projectiles of great size—shell torpedoes; while as to torpedoes, properly so called, our vessels should have about thirty, divided among seven tubes. The system of protection will see the proportion of its weight in the total displacement diminished in a sensible manner; a well-devised subdivision of the hull, 10 to 20 centimeters (3.94 to 7.87 inches) of hardened steel for the belt and principal battery, cofferdams in the compartments where cellulose is introduced. Finally, an armored deck and splinter guard will be all that is necessary, as on board the new vessels which to-day are put into service in England, Germany, and Italy. Draught will be 8 meters (26.24 feet) for the 10,000-ton ships and 7 meters (22.96 feet) for the 7,000-ton vessels.

Next, the scouts. To these vessels, of a mean displacement of 3,000 tons, it is necessary to give a speed of 22 knots, obtained without too much strain on the boilers, without too great coal consumption, and whose coal capacity must furnish a steaming radius 50 per cent superior to that of a battleship. Such results will not be purchased too dearly by a reduction of from 60 to 40 millimeters (2.36 to 1.57 inches) in the thickness of the armored deck, on condition that the cellular cofferdam is placed judiciously. Two guns of 16 centimeters and six of 14 or 10 centimeters (10 centimeters=3.94 inches) will suffice for the offensive armament with the ordinary proportion of light guns and four or five

<sup>1</sup> The division of weights for these vessels will be nearly as follows:

|                             | Per cent. | Total displacement. |
|-----------------------------|-----------|---------------------|
|                             |           | <i>Tons.</i>        |
| Hull .....                  | 35        | 3,500               |
| Engine and auxiliaries..... | 20        | 2,000               |
| Combustible material.....   | 10        | 1,000               |
| Protection .....            | 20        | 2,000               |
| Battery.....                | 8         | 800                 |
| Crew, water, etc.....       | 6         | 600                 |
| Available.....              | 1         | 100                 |
| Total .....                 | 100       | 10,000              |

torpedo tubes. It is essential that the draught shall not exceed 6 meters (19.68 feet), easily obtained with 3,000 tons, as it will be necessary always to be able to navigate the Sound without fear and in almost any weather.

Let us examine now the torpedo boats. A fleet which takes the offensive in restricted waters perfectly known to the enemy must have in advance a flotilla capable of clearing its route by rapidly beating up the torpedo boats ambuscaded in favorable recesses. It is necessary, then, to raise the displacement of our actual type of vedette from 150 to 200 tons, to give it a decided advantage over the *Schichau* model; an advantage which will be indicated above all by the employment of a 65-millimeter (2.56 inches) cannon. It will be necessary also to have the chiefs of groups clearly superior to the German divisional torpedo vessels of 400 tons. If the displacement of our high-speed avisos, like the *Cassini*, 900 tons, seems too great, can not it be taken about 600 tons, so as to have even then with an equal speed (26 knots) a more powerful artillery and a greater endurance? This seems to be, in view of the actual political situation, the logical constitution of a fleet for operation and destined to take an offensive rôle in the north of Europe.

#### IV.

Let us now pass to the Mediterranean, where the exact evaluation of the forces of our adversaries will not permit delicacy, as it depends upon the opinion formed of the cooperation of the two navies of Austria and Italy. If a great conflict breaks out we know well that the recollections of Lissa quickly will be effaced. But there is another thing. The violent shock which will put into opposition the five great European continental powers will have an immediate reecho in the Balkan Peninsula, so divided, so agitated, so well divided between the two parties. The Slav population of Bosnia and Herzegovina, impatient under the Austrian yoke, will not allow this unique occasion to obtain their freedom to escape them. Certainly it will not require great temerity to admit that the bellicose Montenegrins, friends of Russia, will descend from Tserna-Gora to aid their brothers. It is said that they are well organized, well equipped, and ready for any great work. The theater of operations marked for the Austrian navy is behind the curtain of the long Dalmatian Islands; this indented and tempest tossed littoral, where the mountains are promontories and the valleys gulfs, where fiords rapidly can conduct to the foot of Cetinje an army corps embarked at Pola and permit it to take in reverse the invaders of the Bosnian plain. Will Dulcigno and Cattaro be equipped with fixed and movable maritime defenses? It is too much to expect. In any case there may perhaps be enough left there for a navy to do, of which the modest resources of the Austro-Hungarian Empire, the embarrassment of dualism, and also its direct dependence upon the rival organization, the army, check its normal development. But in despite of prognostics

which seem justified, it is prudent to suppose that after having reserved their second-rate vessels for operations upon the coast of Montenegro, the Austrians will construct for concerted action with the Italians a strong division of 3 battleships (2 new, 1 remodeled—the *Tegethof*), 3 armored or protected cruisers, 3 high-speed scouts, and 12 seagoing torpedo boats with divisional destroyers, as in Germany. Let us not deceive ourselves; the balance of this very mobile naval force, well armed, manned by sailors and directed by officers of whom we know the worth, will augment very much the power of the fleet that will be opposed to us in the western basin of the Mediterranean. Added to others, this is a serious reason for us to take the offensive and to reach the Ionian Sea as rapidly as possible to prevent the junction of the allies. In truth, the adoption of this theater of operations, though slightly eccentric, supposes the previous construction, either at Tunis or at Bizerta, of a base solidly defended and well provided with coal, munitions, torpedoes, and the most essential duplicate articles.

Let us leave this a moment to examine closely the Italian forces. A most interesting fleet, it has exactly what ours needs—absolutely wanting, stated better, in noting certain recent progress—and truly the Germans and the English have been very able thus to oppose to each other two navies which complete each other so well; for the day that our southeastern neighbors perceive that they are playing without any great profit the game of these able politicians—the day, in fact, when will be born between the Latin peoples an understanding founded upon reciprocal respect for their aspirations—that day the northern races will cease to dominate the Mediterranean. The great interest of this fleet, to return to the present and to reenter reality, is that it is offensive; that it is so resolutely, of deliberate purpose; that for a long time, for twenty years in fact, in spite of some inevitable fluctuations, it has been so longer than the German fleet. Here is a well marked confirmation of what we maintained above, the influence of exterior politics, and, above all, the diplomatic attitude upon the constitution of a country's naval force. But, above all, it was necessary that this country, eventually to sustain an attitude which must, from many views, provoke catastrophe, should have found men as remarkable as naval men and administrators as the Brins, the St. Bons, the Morins. The active forces destined by the Italian Admiralty to operate at sea comprise 12 battleships (2 building, 1 repairing) and 3 armored cruisers (including the *Marco Polo*), making 15 units; 15 protected cruisers or scouts, but powerfully armed, upon which they rely to increase the line of battle; 13 smaller scouts, and at least 25 or 30 torpedo boats, of strong construction, of from 90 to 160 tons; 150 others, somewhat less powerful or older. These constitute, with the high free-board ships of obsolete type, the defensive element of the naval force. Taken together the 70 seagoing vessels have a remarkable homogeneity of strategic qualities; speed not inferior to 16 knots (since the repair-

ing of the *Duilio* and *Dandolo*), easily raised to 18, 19, or even 20 upon many of the vessels; the radius of action not below 4,000 miles at 10 knots, in many cases double. For a fleet of a certain power placed in the middle of the Mediterranean, 4,000 miles represents a large radius of action, since only 1,800 miles separates Port Said from Gibraltar. Have the Italians foreseen that their fleet can go to the Channel or to the North Sea more closely to unite its operations with those of a faithful ally? Why not? This fuel capacity, somewhat great, considerably augmented by the use of petroleum, seems here to furnish an interesting indication. In any case it can be seen that one of the most clearly marked characteristics of this fleet is mobility. "War is mobility," said Napoleon. Our neighbors have not forgotten it. If now we examine the tactical qualities of the Italian ships we will notice at once the rupture of the classic equilibrium between defensive armament, reduced to a minimum, and offensive armament carried on the other hand to the highest possible degree of power. Since 2 of the larger units admit with the water-line belt only an armored deck of 76 millimeters (1.93 inches); since 8 battleships or armored cruisers, the most recent and the best, have a vertical armor of only 10 centimeters (3.9 inches), intended to burst Melinite shells upon striking, or if they employ an armored belt on the line of flotation, not adopting thickness greater than 15 to 25 centimeters (5.9 to 9.8 inches), and then only over a small area; finally, since the 5 other units, comparatively old, carry thick armor only in the center to defend the motive power; the battery, the torpedoes, and the secondary battery, always of the newest and most perfect models, represent, on these fine ships, a greater fraction of the total displacement than in any other navy. As for the ram, the Italians have taken care not to forget what service this terrible weapon can render to whoever makes use of the mass to pierce armor, hull, and compartments; of speed, to approach the adversary at will; of manœuvring qualities, to overcome the efforts of any vessel seeking to evade the blow that menaces it. The larger Italian ships manœuvre, as those say who have seen them enter narrow harbors, with much greater facility than could be expected from such large ships, and if, perhaps, their tactical diameter is large, the time required to complete a circle is very small. One can see that the Italian fleet amounts to something. Must one, then, admire it without reserve, and declare that its finest specimen, the *Sardegna*, is without fault; above all, an offensive ship? Under no circumstances.

It is a strange thing that well-instructed men and profound thinkers have not more highly appreciated the importance in strategy of the number of units as much as their cost in the financial budget; that they have not tried to create types as offensive but less gigantic, and consequently cheaper and of a more easy repetition, for a country whose wealth is more modest than its ambition. Without doubt they

would have arrived there, as they soon will,<sup>1</sup> by rejecting the too costly and much-discussed monster cannon with the same energy as gigantic battleships, and also in persevering in the direction indicated by the *Duilio*, the lowering of freeboard. What should be opposed to this fine squadron, which, joined by the active Austrian division, will comprise 18 battle units, 18 cruisers or powerful scouts, 16 light scouts, and 35 or 40 seagoing torpedo boats? Forces evidently very nearly equal, for here it would be temerity to count upon a cooperation, at least immediate, of the Black Sea fleet. We must no longer deceive ourselves that the feeble squadron maintained by Russia in the Mediterranean has a very permanent character; but that it appears above all to play the rôle of reserve for the fleet in the extreme East. Consequently we must oppose 18 battleships, 18 scouts, 8 torpedo vessels at the least, and 36 seagoing torpedo boats, a total of 80 vessels, to the 80 or 90 eventually available for our adversaries. Shall we say oppose? But how to oppose a fast squadron with one inferior in speed, particularly when the former sees it to its interest to shun the tactical solution and refuses battle? For this must be the case for the allies, who well understand that if the decisive ship-to-ship battle results in our favor, and to claim this does not indicate too much presumption, we would be free, being masters of the sea, to undertake a series of operations very injurious to them and exercising a sensible result upon the general solution; or to be at liberty to send to northern waters forces capable of commanding them without contest.

Thus we can be assured that they will always evade decisive action as long as we are not in a position to impose upon the adversary this strategic principle: above all things to seek out and fight the enemy's organized forces. Thus speed at a minimum of 19 knots for the larger battle units and of 20 for some of them seems plainly the indispensable condition of the efficiency of the French naval force in the Mediterranean. As well as number and speed, radius of action, the third strategic characteristic, will have a considerable influence upon the operations of war, which scarcely can extenuate the organization, very desirable where it concerns us, of a regular service of provision boats and colliers. This service must then be established with great care,

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<sup>1</sup> *L'Ammiragliodi Saint-Bon* and *P'Emmanuele-Filiberto*, the new Italian battleships, have guns not exceeding 25 centimeters instead of 34 (13.39 inches); of 25 tons weight instead of 69. As the turrets protecting this new battery have a thickness of only 250 millimeters (9.84 inches) instead of 450 (17.72 inches); that besides this all training machinery, carriages, frames, etc., as well as the ammunition, will undergo a corresponding reduction of weight, the total economy is at least 1,200 to 1,500 tons. The *Ammiraglio di Saint-Bon's* displacement is not above 9,800 tons, instead of 14,000, while the thickness of the armor has been increased in the mid-ship part of the vessel; but, on the other hand, the speed has fallen to 18 knots. With 1,600 tons more displacement 20 knots could have been retained without rising to 12,000 tons, the displacement of our *Carnot*, *Jaureguiberry*, etc.

and it is not a good idea to take for a base of supplies an arbitrary distance steamed at 10 knots. People seem to forget that a fleet, once its object attained, must traverse in an inverse sense to return to its base the route which conducted it to this objective, and finally that it will be extremely dangerous for it to appear before its port, at the entrance to which a hostile force may be waiting, with empty bunkers. Besides, the speed entering into this calculation is entirely insufficient. Cruising speed of a modern fleet will be nearer 14 knots than 10. Besides, it is impossible to neglect, particularly in war time, the sensible expenditure which results from the use of auxiliary boilers and engines, independent of the motive power, by means of which the working of batteries, electric lighting, various hydraulic gears, windlasses, capstans, etc., is carried on. We shall come nearer to the reality and arrive in a more direct manner at the military necessities by laying down the following conditions to determine the fuel outfit:

(1) Power to cross the Mediterranean each way, from Oran or Toulon to the Dardanelles, at 12.5 knots, or to go from Toulon to Dunkirk at 14 knots. This supposes a consumption for the first case of about 1,000 tons, for the second case about 800 tons.

(2) To maintain in use all the auxiliary machinery. This requires an expenditure of from 120 to 150 tons in the ten days of the double trip through the Mediterranean.

(3) A reserve of at least 100 tons. Total, 1,200 tons of coal.

One thousand two hundred tons of petroleum would be worth more from the different points of view of efficiency, space occupied, and rapidity of stowage; above all, this would eliminate, as nothing is to be done but turn cocks to feed the fires, the rapid overworking of the firemen and coal heavers. Nevertheless, whatever military advantages may be expected, the exclusive employment of petroleum has not yet been reached in our navy. Who would dare to close one of the principal employments of national coal? If the moment had not come to remember that the Mediterranean is the most favorable field of trial for the seagoing monitor, where the protection against the adversary's artillery will be demanded above all by the lowering of the vertical target, to the great benefit of its military value and the reduction of net cost of the fighting unit, we would have nothing to change in what has been said above in regard to the tactical qualities and to the predominance which it is necessary finally to give to the offensive organs, the arms on the defensive units, or at least upon the heaviest and the most costly, the armor clads. Here it is not a question to develop an idea already familiar to many sailors and engineers, partly realized in the *Monterey* and the *Katahdin* of the new American Navy. At another time we never would have permitted ourselves to be passed by anyone in this fertile field; we would have tried to solve all problems, undoubtedly intricate, which this idea raises, and we would have solved them. Is it then true that henceforth, reduced to imitate, we are ready to resign ourselves to follow behind the type, far from being in advance of it?

The offensive, to be serious and durable, must depend at the beginning of the forward movement upon a solid primary base, and, successively, as the naval force progresses upon fortified posts, secondary bases where are collected the most indispensable necessities for refitting the units of combat. The far-seeing and tenacious policy of England, served by a diplomacy whose intrigues are always aggressive at bottom, if not in their form; this traditional policy triumphs in the art of preparing, during peace, the guides of the natural grand lines of operations for her fleets. One can admit, however, the power to create these series of repairing stations during the first movements at points seized, such as islands, in the enemy's territory. Besides, it is necessary that the elements of this system must be prepared in advance, and notably that account must be taken of what special forces the defense of each echelon shall be confided to. But we shall exceed the limit set if we allow ourselves to be seduced by the interesting subject of the organization of maritime bases. Let us take up to-day only that which touches upon the logical composition of our fleet; that is to say, the organization of the maritime mobile defense of the French littoral and its adjuncts—Corsica, Algeria, Tunis, and foreign colonies. After long discussion, resounding and passionate, people have finished by agreeing upon the value of torpedo boats as engines of coast defense. Still better, torpedo boats, formerly so much despised, have succeeded in making for themselves an honorable place, as we have just seen, in active fleets, in seagoing naval forces. It is true, to obtain this result they have been compelled to give up the benefit which was considered to be the most essential to their success—invisibility. The quality of high speed more surely obtained, longer maintained through a sensible increase of their tonnage, has sufficed to open the eyes, even of the blindest. The services which they can render as bearers of dispatches, couriers of high speed, in the numerous cases where the state of the sea is not opposed to the development of their powers, have been well recognized. While not as fine as the seagoing torpedo boats, the coast torpedo boats of the first class (80 tons instead of 120 or 150) are not less good war instruments, well adapted to the service required, and with which one would not hesitate to go to sea to conduct an active defense, the best and most efficacious. It is hardly doubtful that an admiral, returning to his base of operations with seagoing torpedo boats thoroughly fatigued, would not consider himself satisfied to be able, temporarily, to replace the one by the other. One can not say as much of the second-class torpedo boats, which, sensibly weaker (45 to 50 tons), must be left to their defensive rôle. But in any case, what should be the number of these coast-torpedo boats of the two classes? Are there any logical grounds from which to determine this? Let us suppose a naval force observed from near by by the enemy, even blockaded; while it refits at the anchorage which serves it as a base, that there it recuperates, that there it repairs its motive power and cleans

its boilers. To the active and mobile elements of the maritime defense belongs the duty of assuring to this fleet a relative security; it is the duty of the coast-torpedo boats particularly to keep the enemy as far off as possible, to impede his approach under cover of darkness, which paralyzes coast defenses and enables him to rain projectiles upon the anchorage, the ships, and the establishments ashore. Such an operation, an unexpected and nocturnal bombardment, which has nothing in common with the systematic and calculated bombardment of a regular siege, can not be undertaken except by a division, relatively feeble in number, of a hostile naval force. The enemy can not, in truth, pass his nights at the entrance to the harbor and keep his boilers in good condition without using prematurely all his means of action; he will retain in reserve at least half his effectives, either at anchor in the neighborhood of the base or at sea under easy steam. Let us admit that 4 battleships and a corresponding number of light vessels are detailed each night for the operation under discussion. One can not allow less than 12 first-class torpedo boats (3 to an ironclad) to oppose this by attacking with some hope of success the powerful units of this division. Besides, it is clear that these torpedo boats will need rest every other night; hence the necessity to allow 24 to the base or even 30 to guard against accident, injuries, and the divers chances of war. While the torpedo boats attack the adversary's battleships, some stonger vessels must contain the light ships; this is the rôle of the divisional avisos, and we must allow either 4 or 5 of them to a flotilla of 30 torpedo boats. If the engagement draws near the base and our vessels are beaten, or if the engagement prolonged to daybreak brings in the enemy's reserves, it will become necessary, and without need of the intervention of coast batteries, to send upon the field of action powerful and solid elements capable of supporting, gathering up the flotilla, and protecting its retreat with guns or, if needed, with the ram. Behold the coast-defense vessel in action! Indeed, this engine, par excellence, of defense is not wanting to our fleet, unhappily defensive in its entirety, with which events, circumstances and men have endowed the French navy.

In the too-variegated assortment of our war ships this type is represented with such abundance that there would be room for astonishment in spite of all, if one did not remember that at the moment a program of new construction (soon forgotten) is prepared with the assent of the Chambers, every minister, embarrassed concerning the choice of new construction, falls back upon a coast-defense vessel. Thus it is that we have 22 of them (including armored gun vessels) displacing 100,000 tons, while Germany, for a long time and justly, preoccupied with defending herself upon the ocean, has but 17, of whom 11 are old gun-boats which she is going to let disappear without even thinking of replacing them; while England has but 2 and Italy none; but the worst of it is that 9 of ours are relatively recent, and that the last 4, of

the types *Valmy* and *Trehouart*, have just entered service. Without doubt their seagoing qualities and their relative speed have caused them to be put in the category of battleships, but it is sufficient to state that their coal capacity assures them only 1,700 miles at 10 knots, in order to prove their inaptitude for offensive operations, which are, or ought to be, the proper rôle of active fleets. Therefore it is said if the coast-defense vessel, in so far as it is a coast-defense vessel, has its place marked out among the necessary elements of the mobile defense of a base, is it not logical to build some of them? Perhaps, while consulting only pure logic, but we have other things to think about; we must consult our budgets and our resources. When one's resources are limited, to devote 130,000,000 francs in thirteen years to 9 vessels, absolutely special, is to expose ourselves to the reproach of making bad use of public revenue, and this reproach appears to be more justifiable when one reflects above all that antiquated units of combat, unserviceable for war abroad, will retain for a long time a value sufficient to guard in a close defense the neighborhood of bases, to prolong, by resting themselves upon the support of the guns, the action of coast batteries. This is well understood in England, where all the coast-guard and port-guard vessels are old battleships; in Italy, who utilizes as central ships of her mobile defense what are left over from Lissa; in Germany, who, changing her mind as we stated above, has made of the *Siegfried* type a seagoing ship by increasing its radius of action, and retains her old battleships as *Hafen-Schiffe*. However it may be, we are not wanting in coast-defense vessels. In resigning ourselves to the definite merging of the 9 ships of which we have just spoken into the active fleet, we still have 5 coast defense-vessels, 8 armored gun vessels, 4 battleships anterior to 1877, and 4 *cuirasses de station* even older, which never would be sent far away; total, 21 units. More than necessary. Let us see how many coast torpedo boats we need, and for this purpose let us count our bases. In the north the three principal ones, Dunkirk, Cherbourg, and Brest, will be sufficiently provided with 30 torpedo boats for each of the first two and 25 for the third. In the west, Lorient and Rochefort—good factories, but as military positions actually but little menaced—will be content each with 10 torpedo boats. Toulon, our only principal base on the French littoral of the Mediterranean, not without grave inconvenience, will require 30; Oran, Bizerta, Ajaccio, and Bastia, secondary bases as general plant, but very important from the strategic point of view, will require 15 or 20; total, about 210. Let us add to this about 90 to constitute local defense at commercial ports, which considerations, somewhat removed from exclusive and perhaps serious military interests, will not permit us to deprive of all mobile maritime defense. Finally, the six bases of operations in foreign seas—Dakar, Fort-de-France, Diego-Suarez or Bourbon, Saigon, Noumea, and Tahiti—will require 50 or 60. Thus we arrive at a general total of 360 torpedo boats, probably 200 first class and 160 second class. This block

of 360 torpedo boats must be divided into 60 squadrons, to each of which theoretically must be assigned an aviso, chief of the group. Sixty avisos is a large number, and, as we shall see, it is necessary to limit our demand; 30 may suffice, provided the distribution admitted favors the essential bases—Dunkirk, Cherbourg, Oran, Toulon, Bizerta, and Bastia; provided, also, that displacement is not tampered with; 500 tons will not be too much to obtain 25 knots, fully loaded, and a respectable battery. That the presence of a submarine torpedo boat in the anchorages of our war ports will be of a nature to inspire much circumspection in a blockading fleet and oblige it to increase by many miles the zone of active observation is what nobody will deny. The moment is near at hand, without doubt, when in spite of all obstacles we can count upon the services of these engines for the defense of our bases of operations. Their adaptation to the offensive soon will follow. In the examination of the rational composition of the French fleet flowing from exterior political circumstances it remains to examine what elements should be assigned to the protection of our commercial marine or to the destruction of the enemy's mail steamers. Of these two duties the first will be but too easy; to speak of the second is once more to raise the question of cruiser war, already so much debated. Happily, we can dispense with touching upon a subject which has been treated here only a few months ago. Moreover, in spite of the able diversion of England, all the maritime nations, and France among them, have decided to enter a path which was opened about ten years ago, so that the era of sterile discussions seems ended. On the other hand, if up to this moment we have not admitted into this study more than the general hypothesis of a conflict with the Triple Alliance without preparing resources demanding the best possible employment against Great Britain, we can anticipate upon this special point of cruisers, since it concerns types of which the putting into use aims above all (it would be puerile to hide it) against the most powerful marine of the whole world. Let us see, then, what we require in the case of an Anglo-French duel; the calculation is very simple:

(1) Four divisions composed of 1 cruiser of 4,000 tons, *Descartes* type, and 3 cruisers of 2,000 tons, *d'Estrées* type, for the China Sea, the Indian Ocean, the Pacific, and the Antilles, there to ruin the enemy's commerce, to menace his maritime stations, if necessary to ransom them, and at the same time to cover our own. Vastly inferior in number to their adversary, these divisions must have the advantage of speed and radius of action.

(2) Eight large corsair cruisers for the North Atlantic, 2 alternately cruising or refitting upon the routes of navigation converging toward England (St. Lawrence, channel of the north: New York, Queenstown, Bahama Channel, Bahia, Cape Verde, Cape Finnisterre, Ushant). These cruisers will be vessels of from 10,000 to 12,000 tons, having for weight of combustible about one-quarter of their displacement and a speed of from 23 to 24 knots.

(3) Two other large cruisers, but of 8,000 tons only, for the North Sea. Like the preceding ones, these vessels to have a speed which will permit them to escape from the English cruisers *Powerful* and *Terrible*—let us say at least 23 knots.

## VI.

Let us recapitulate the different active elements of the military marine force thus logically constituted, and, approaching the financial question, let us endeavor, by the comparison of the elements of this ideal fleet with that of the actual navy, to discover the effort which it will be necessary to ask of the country. For the working force to the north and south we have deduced 32 battleships or large armored cruisers of a total of about 300,000 tons; 28 scouts, of 84,000 tons; 12 torpedo vessels and 56 seagoing torpedo boats, of about 18,000 tons.

For coast defense, 30 torpedo vessels, say 15,000 tons, and 360 coast torpedo boats of the first and second class, say 25,000 tons. As for coast defense vessels, it is understood that these are to be obsolete battleships. No navy will be without them, ours less than any other, since they have existed only twenty years.

For exterior operations and the capture of mail steamers, 26 cruisers of different types, displacing 176,000 tons. Thus we arrive at 618,000 tons, to which it is well to add 24,000 tons for 4 squadron depot ships, refitters of the light units, like the *Foudre*, now in service. Everything included and rounding off a little, 650,000 tons. It goes without saying that we neglect all auxiliary naval adjuncts—transports—which can be replaced by mail steamers, of which we possess enough and plenty; school ships, training ships, towboats, lighters, powder boats, tenders, etc.; finally, gunboats, side-wheel and screw dispatch boats, launches, vedettes, and other small vessels for service on interior waters and in foreign countries. Six hundred and fifty thousand tons of shipping having a real military value and capable of playing a weighty part in the conflicts that menace us. This is what we must have. What have we in reality, even counting the units building? Nineteen battleships, of a mean tonnage of 11,000, and 1 large armored cruiser of 6,800 tons, making a total of about 215,000 tons of displacement. If merely provisionally and by an unfortunate surrender of principle we admit the 9 coast-defense vessels referred to above in the fighting force, these coast-defense ships called offensive, we will arrive only at 275,000 tons; 27 scouts, among which are to be counted 5 small armored cruisers of the *Charner* type; total, 88,000 tons; 11 divisional avisos and 40 seagoing torpedo boats; total, 17,000 tons. Here we accept as divisional boats 8 vessels officially styled counter torpedo boats, 4 of the *Faucon* type and 2 of the *Levrier* type, but whose speed is totally insufficient. We insist that this is only a provisional utilization. Eight torpedo vessels of low speed, displacing 3,000 tons, and 190 coast torpedo boats, displacing about 11,000 tons; total, 14,000 tons; 13

cruisers, of which 3 are obsolete, and of which only 2, still under construction, the *Guichen* and the *Chateau-Renault*, approach in any degree to the conditions of cruiser warfare in the North Atlantic. These 13 vessels displace 78,000 tons; 1 squadron depot ship, the *Foudre*, of 6,000 tons. Thus all reservations made upon the provisional utilization which we reproach ourselves for having made already, the French fleet of 1898 represents 480,000 tons of fighting vessels instead of 650,000. Thus we have 170,000 tons to construct with the least delay possible, that is to say, in four years. Nevertheless, instead of 170,000 tons it would be wise to allow for 200,000 tons, owing to the eliminations which will be made during these four years from the fleet in the first line. Well, by what figures is the corresponding financial effort to be deduced? Two hundred thousand tons at 3,000 francs a mean ton (the battleship ton and the *Corsair* cruiser ton will not be much greater than 2,300 to 2,400 francs, but the torpedo ton will amount to 5,000 or 6,000), this makes 600,000,000 francs. It will be indeed wise to take account of an inevitable increase of price of all materials necessary in naval construction, unless as an exception and in favor of a national interest well ascertained, Parliament authorizes the administration of the marine to make use of the resources of the large foreign machine shops.<sup>1</sup>

In any case one can legitimately, to balance this increase, take account of a certain diminution of the net cost per unit if, as there is reason to hope, well conceived and well studied types frequently will be repeated. Now in regard to our 600,000,000 francs. Without doubt the total is large, but the fact must not be lost sight of that each year about 80,000,000 is entered in the construction budget, which in four years amounts to 320,000,000. Thus but 280,000,000 will be required from extraordinary budgets, in fact only about 200,000,000 if we add one year to the four-year term proposed above, because this is the minimum delay required by the preparation of plans and the construction of a large fighting unit. It is necessary to observe that this charge, certainly very heavy, of 200,000,000 to 280,000,000 will be sensibly reduced if we devote each year less important sums to the repair of obsolete vessels; that it will be much better to leave them, such as they are, to their natural rôle of reserve or coast defense vessels, and to the innumerable alterations (*travaux de modification*) inflicted, most frequently without necessity, upon the ships building or already in service; but this leads us too far, and besides we can not avoid noticing the normal and very legitimate augmentation which logically must result to certain chapters of the ordinary budget from the extraordinary increase of the fighting

<sup>1</sup> This call will be necessary from other points of view. It is doubtful if our forges and factories will be able to furnish in four years steel plates, shapes, armor plates, or built-up parts of all kinds, such as boilers, machinery, gun material, etc., that will be necessary. Above all, it is not doubtful that this supply, "intense," so called, will do no injury to interests of commercial construction, and already in the Parliament reserves have been asked for by the representatives of the ship owners.

fleet. It is clear, for example, that more men will be required, increase of war material, increase of certain storehouses, rearrangement of moorings, ports, docks, etc. Definitely we can not think of expending less than about 250,000,000 in works paid for by special budget; and we shall esteem ourselves happy if after all balances are struck between the inevitable increase and the reductions realized from the ordinary budget, this increase will not exceed in the future the 240,000,000 granted for 1897 to the naval establishment (*services marine*). Here let us examine with what resources it will be best to meet this expenditure of 250,000,000 spread, one must not forget, over four or five years, which will much exceed our allowance. We desire to say, and without ignoring the real financial difficulties, that France is not yet ready to refuse the necessary appropriations to her navy at the moment when she is reconstructing her colonial empire, torn apart last century; at the moment when upon the European continent compact masses oppose barriers more and more solid to her expansion; when, besides, the axis of general politics is moving toward the east, and when with a unanimous enthusiasm all nations turn toward the sea to ask of it the secret of riches, of prosperity, and military power.

## VII.

This rude pursuit of supremacy upon the sea is indeed a spectacle which merits the attention of the observer. All seek it, some wish it entirely, well understanding that supremacy upon the ocean also is supremacy upon the land. Others, with an ambition for the moment less vast, but just as tenacious, will content themselves with the basin which they occupy in the center and which was obedient to their ancestors. These have oceans of their own which are their zones of influence; those, territorial seas jealously reserved. Some dominate with pride over straits where all pass on artificial arms of the sea, where all pay; and in this universal passion for the element, which is at the same time the highway of material interests, the connecting link between peoples and the eternal vehicle of civilization, have disappeared the last two of the five conditions laid down at the beginning of this study; these two conditions which formerly appeared essential, financial strength and the natural faculties, instinct, sea-sense.

What is financial strength? Certainly it is this which permits England to expend in ten years two milliards and a half to double her fleet; the United States to create one in a few years; Germany quickly to pass from the fifth or sixth rank to the third, while awaiting a higher one, in spite of the weight of her military charges. But if this condition is sufficient, it seems no longer necessary, thanks to the national loans always subscribed to through able intermediaries among rich nations who either do not know or dare not

employ their capital at home. Where is the government so poor, so repudiated as to see itself refused here—in devoting to the necessity the product of a tax, a monopoly or the customs of any port—the wherewithal to order battleships, cruisers, or torpedo boats at New Castle, Glasgow, Stettin, Elbing, Sestri-Ponente, or Leghorn? At Havre or la Seyne let us add, willingly, if this windfall was not rare for those who become at their own risk and peril benevolent money lenders to the nations involved, what of the natural faculties of the race, the sea sense? Who occupies himself with this? It is necessary to have a fleet well or badly managed. The Chinese had one; they lost it; they are getting a new one. After all it is not certain that they are wrong. This instinct of the sea, an innate faculty of some, will it not become an acquired faculty for all the others? Have not the Russians made in this direction astonishing progress in two centuries; and who would have dared predict thirty years ago that Germany would give offense to England by the sudden impetus and the rapid increase of her commercial fleet? Here also we can see after a long torpor the Spaniards again becoming sailors. In a few years the fleet of our southwestern neighbors will retake the rank held when she struggled with us against the oppressors of the sea, when she disputed with them the Mediterranean and the Balearic Islands, the seas of the Antilles and of Colombia, from 1739 to 1748, from 1779 to 1783. Be not deceived. It is this fleet born again, and already strong, also ably composed of offensive units and of rapid ships, which inspires a wise reserve in a certain government upon the Cuban question. Let us applaud this vigorous flight of the Spanish navy. Let us felicitate ourselves on this new budding of the maritime spirit in a proud and energetic people, astride, like us, upon the ocean and the Mediterranean, that knows well that it must command the point of junction and that never will forget the insult of Gibraltar.

To recapitulate. What is the spirit (*l'état d'ame*) of the nation, face to face with matters pertaining to the sea? Does it interest itself in these things in reality? Does it appreciate the importance, and, apart from some speeches where nothing is said that should be said, while repeating to satiety that about which silence should be maintained, does it resolutely manifest, as do all other nations to-day, the will to have a powerful navy or only the navy of its power? A delicate and difficult question, to which we replied implicitly at the beginning of this study. What, then, are the essential factors of what we have called the maritime spirit? Of what tendencies, of what qualities, perhaps even of what happy defects, is it composed? Is it not exactly of that liberal enthusiasm, of that spontaneity of decision, of that love of distant and adventurous enterprises, tenacious and encroaching actions; in a word, of those pacifically offensive faculties, always tempered by our humanity, by our cordial good humor, which formerly we possessed to such a

high degree and which during a hundred years are becoming enfeebled, destroyed, and are disappearing? Let us beware. If it is indeed from these sources that the maritime spirit is nourished—if it is from all this that the force of expansion of a great people is made—it is all this also which sustains and vivifies its navy—one of the principal elements, and finally perhaps the principal factor, of the nation's power. To construct vessels, and offensive ones, is well enough; that which is better is to be able to confide them to the men who know the price of audacity—the price of those bold initiatives which conquer fortune in disconcerting the adversary. To-day without doubt we have these men. Will we always have them? Can it be imagined that in a nation where the verile qualities of which we spoke a little while ago are decaying, will it be possible, if the people do not react promptly, very long to assure to the navy an inflow of exceptional characters?













